

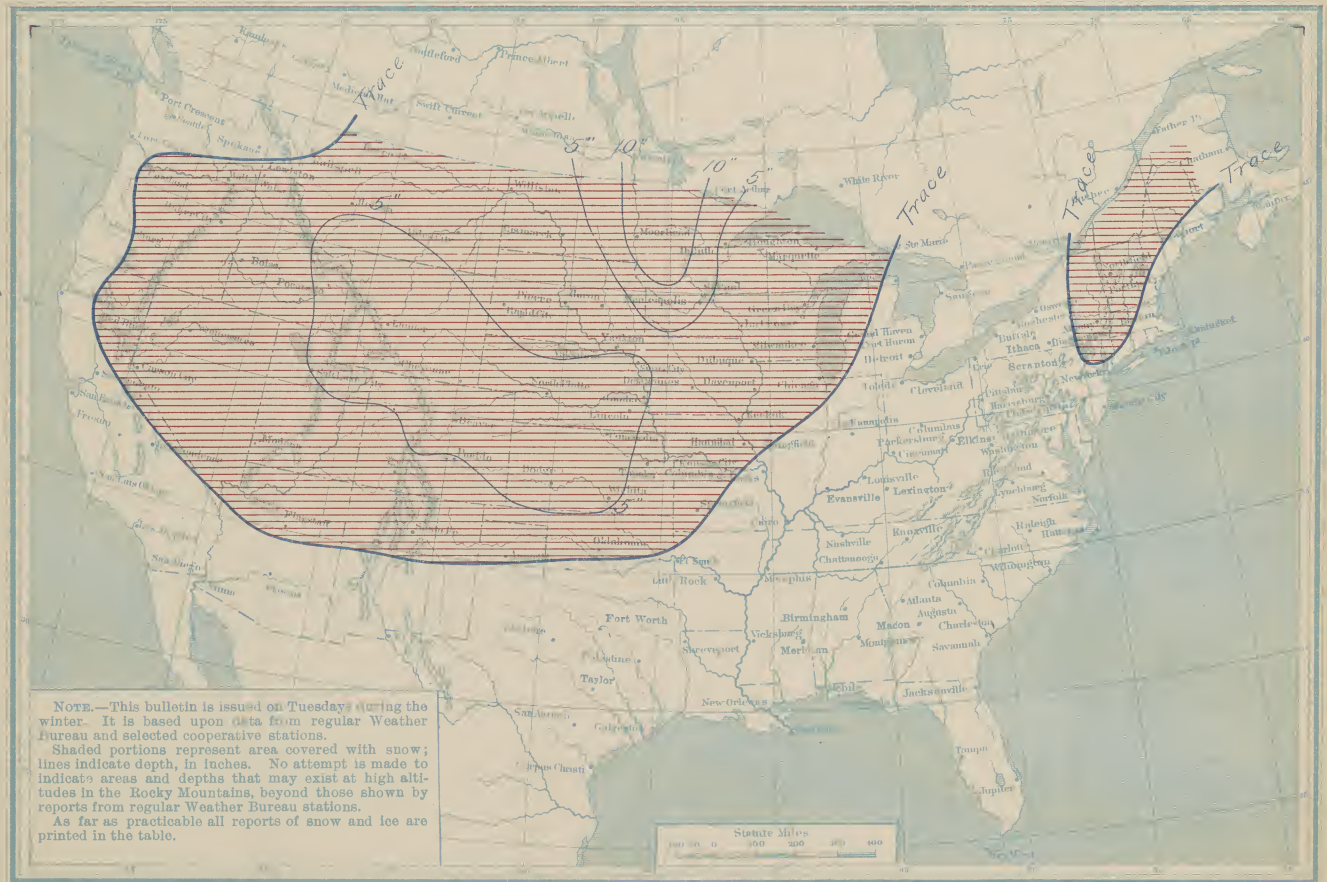
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U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU. SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., December 7, 1909. DEPTH OF SNOW.

At 8 p. m., December 6, 1909, large portions of the country extending from the upper Lake region and middle Mississippi Valley westward over the Great Plains and mountain districts to the central portions of Oregon and Washington and northern California were covered with snow ranging in depth from a trace to 5 or 10 inches or more. The greater part of the snow covering has occurred within the past day or two in connection with an extensive storm area that moved from southwest Texas northeastward to the Lake region during the 4th to the 6th, and a generally unsettled condition that prevailed over the mountain and Plateau districts during the same period.

The greater portion of the Plains region from Oklahoma northward to the Dakotas, and the upper Mississippi Valley, is now snow covered to depths ranging from 3 to 10 inches. In the mountain districts from northern New Mexico and Arizona to the southern portions of Montana and Idaho the depths at the lower elevations range from 3 to 10 inches with probably considerably greater amounts in the high mountains. Unusually heavy snow for so early in the season covers the ground in northern California, central Oregon, and southern Washington, the depths ranging from 2 to 5 inches. A small amount of snow covers the ground in the Adirondack regions of New York and the interior of northern New England.

Compared with the amounts on the ground at the corresponding period in 1908, there is a large excess from the Mississippi Valley westward over the Great Plains and mountain regions, while to the eastward of the Mississippi River the amounts are everywhere less, the Lake region then being covered to depths ranging from 3 to 10 inches, with smaller amounts over New England.

ICE IN RIVERS AND HARBORS.

The continued mild weather throughout all portions of the country prevented the formation of ice to any extent save in the extreme northern portion of New England, where several inches are reported, and in the upper Missouri Valley, where the cold weather of the past few days has caused the formation of from 2 to 6 inches of ice on the main stream and similar amounts on some of its northern tributaries. About 2 inches of ice has formed on the extreme western end of Lake Superior, but elsewhere in the Lake region no appreciable amount of ice has yet formed.

Compared with the same period one year ago there is considerably less ice at the present time in practically all districts.

The following special reports have been received regarding the snow and ice conditions in some of the more important districts:

Brattleboro, Vt., December 6.—There is only shore ice in the Connecticut River here; and there is snow only back on the hills.

Albany, N. Y., December 7.—The depth of snow in the upper valleys is 2 inches, decreasing to 1 inch in the lower Mohawk and to a trace in the lower Hudson Valley. The rivers are open, except that ice is reported in the Sacandaga, at Northville, 2 inches thick, and in the upper Hudson River at Corinth, 3 inches thick.

Pittsburg, Pa., December 6.—There is no snow on the ground within the watersheds contributory to the upper Ohio River.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 6, 1909.

Stations.			Stations.			Stations.			Stations.		
Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.	
Arizona.			Massachusetts-Con.			New Hampshire.			Inches		
Flagstaff	3	Inches	Amherst	T.	Inches	Bethlehem	2	Inches			
Arkansas.			Michigan.			Hanover			4		
Bentonville	1		Big Rapids	T.		Keene	T.				
California.			Calumet	1		New Mexico.					
Red Bluff	5		Escanaba	T.	0.0	Santa Fe	2				
Colorado.			Grand Haven	T.	0.0	New York.					
Denver	5		Grand Rapids	T.		Albany	T.	0.0			
Durango	4		Houghton	2	0.0	Chatham	T.				
Grand Junction	T.	00.0	Mackinaw City	1		Lake Placid	2				
Leadville	10		Mancelona	T.		Plattsburg	2				
Pueblo	1		Marquette	T.	0.0	Port Jervis	2				
Connecticut.			Sault Ste. Marie	T.	0.0	Saratoga Springs	2				
West Simsbury	T.		Minnesota.			North Dakota.					
Idaho.			Angus	11		Bismarck	3	7.5			
Boise	1		Baudette	12		Devils Lake	8				
Lewiston	T.	*	Beaulieu	8		Williston	T.	1.0			
Pocatello	2	0	Collegeville	14		Oklahoma.					
Illinois.			Duluth	1	2.5	Oklahoma	T.				
Bloomington	T.		Fergus Falls	4		Oregon.					
Chicago	T.		Glencoe	4		Baker City	2				
La Salle	T.		Grand Meadow	3		Portland	4	0.0			
Martinton	T.		Hinckley	8		Pennsylvania.					
Monmouth	T.		Mankato	5		Selins Grove	T.				
Peoria	T.	0.0	Milan	3		South Dakota.					
Springfield	T.		Minneapolis	6		Huron	4	6.5			
White Hall	T.		Moorhead	11	6.0	Pierre	3	†			
Winnebago	T.		Mount Iron	6		Rapid City	1				
Indiana.			Redwood Falls	5		Yankton	5	2.0			
Knox	T.		Reeds	T.		Texas.					
Iowa.			St. Paul	5	†	Amarillo	T.				
Atlantic	4		State Sanatorium	10		Utah.					
Carroll	2		Windom	4		Modena	1				
Charles City	1		Missouri.			Salt Lake City	5				
Davenport	T.	0.0	Columbia	T.		Vermont.					
Des Moines	2	0.0	Hannibal	T.	0.0	Brattleboro	1	†			
Dubuque	T.	0.0	Kansas City	2	0.0	Burlington	1	0.0			
Forest City	2		Springfield	1		Northfield	3				
Iowa City	T.		Montana.			Washington.					
Keokuk	T.	0.0	Havre	2		Walla Walla	5				
Marshalltown	T.		Helena	3		Wisconsin.					
Sioux City	4	*	Miles City	T.		Eau Claire	1				
Kansas.			Nebraska.			Koepnick	T.				
Concordia	6		Columbus	4		La Crosse	T.	*†			
Dodge City	7		Lincoln	11		Madison	T.				
Iola	2	0.0	Minden	7		Milwaukee	T.	0.0			
Ottawa	2		Norfolk	7		Racine	T.				
Topeka	1		North Platte	5		Spooner	T.				
Wichita	6		Omaha	9	†	Viroqua	T.				
Maine.			Pawnee City	2		Wausau	T.				
Greenville	1	4.0	Tekamah	6		Wyoming.					
Lewiston	2	†	Valentine	2		Cheyenne	4				
Massachusetts.			Nevada.			Lander	8				
Adams	1		Reno	1	0.0	Sheridan	7				
			Tonopah	1		Yellowstone Park	7				

*Floating ice. †Shore ice. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
SNOW AND ICE BULLETIN.

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Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., December 14, 1909.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 13, 1909.

DEPTH OF SNOW.

The snow-covered area at 8 p. m., December 13, 1909, was not materially greater than was reported one week ago. Considerable snow has fallen during the past day or two in the lower Missouri and middle and upper Mississippi valleys, portions of the upper Lake region, the North Atlantic States, and New England; and a large area in the Ohio Valley and the western portions of New York and Pennsylvania that was bare of snow last week now has a slight covering.

Snow has disappeared, however, from a large region west of the Rocky Mountains, especially in the eastern portions of Washington and Oregon, northern California, and the middle Plateau region, which was well covered with snow last week.

Over the eastern portions of the Great Plains region, from central Kansas northward and thence eastward to the Great Lakes, the ground is now well covered, the depths ranging from 3 to 12 inches, while depths from 3 to 6 inches cover considerable portions of northern New York and the interior and northern portions of New England.

From the Missouri Valley eastward to the Lake region the increase in depth over that of last week ranges from 3 to 12 inches and the depths over portions of New York and New England are greater by amounts from 2 to 6 inches. From the Missouri Valley westward the snow covering has been very materially reduced, the decrease in depth ranging from 2 to 4 inches or more, except at local points in eastern Oregon and east-central California, where there appears to have been some increase over the depths reported last week.

ICE IN RIVERS AND HARBORS.

Continued cold weather during most of the past week over the more northerly districts of the country has resulted in the formation of considerable ice in addition to that reported a week ago. The thickness of ice in the Missouri River and its tributaries now ranges from about 5 inches at Sioux City to 12 inches at Bismarck. Below Sioux City, however, the river is still open. In the Mississippi River considerable ice has formed in the vicinity of Keokuk, Iowa; but elsewhere, except over the headwaters, the river is comparatively free from solid ice, although floating ice is reported as far south as Cairo. No appreciable amount of ice has yet formed on the Ohio River or its main tributaries, and the rivers of the Atlantic coast districts are comparatively free, except in the upper portions of the Hudson and its tributaries and in the interior of New England, where the rivers and ponds are covered with several inches of ice.

In the Lake region ice from 1 to 3 inches in thickness has formed locally at exposed points on the shores of Lakes Erie and Ontario and at a few points in the upper Lake region. Compared with the same period one year ago, there is now generally less ice than was then reported.

The following special reports have been received:

Gardiner, Me., December 13.—The Kennebec River is closed to navigation above Richmond; below there is floating ice.

Albany, N. Y., December 14.—In the Hudson Valley the snow averages 5 inches in depth; in the Mohawk 4 inches. In the Mohawk River the ice averages 1 inch thick; while in the Hudson there is floating ice from Troy southward.

Binghamton, N. Y., December 14.—The depth of snow in the upper Susquehanna watershed ranges from a trace in the lower district to 3 inches in the upper; but Richfield Springs, N. Y., reports 3.5 inches.

Harrisburg, Pa., December 13.—The Susquehanna River here has been frozen since the morning of the 9th from Market street bridge to Broad street, distance about half a mile, but the ice is rotten and has moved several times to-day. It will probably break up and move out to-night. The ice is estimated to be about 2 inches thick.

Hannibal, Mo., December 13.—There is heavy floating ice and some shore ice in the Mississippi River here.

Cairo, Ill., December 13.—There is floating ice in the Mississippi River here, but none in the Ohio.

F. H. BIGELOW, Professor of Meteorology.

Stations.				Stations.				Stations.			
Snow.		Ice in rivers, harbors, etc.		Snow.		Ice in rivers, harbors, etc.		Snow.		Ice in rivers, harbors, etc.	
Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Arizona.				Michigan—Cont'd.				New York—Cont'd.			
Flagstaff	1			Calumet	5			Cutchogue	1		
Arkansas.				Chatham	7			Franklinville	3		
Fort Smith	T.			Detroit	T.	*		Oswego	2	1.0	
Little Rock	T.	0.0		Scanabara	14	†		Plattsburg	2		
California.				Grand Haven	4	0.0		Rochester	T.	1.0	
Independence	14			Grand Rapids	5			Saranac Lake	4		
Colorado.				Hillsdale	2			Saratoga Springs	3		
Denver	T.			Houghton	9	2.0		Setauket	T.		
Durango	5			Ironwood	2			Syracuse	T.		
Grand Junction	T.			Lansing	3			North Dakota.			
Connecticut.				Mackinaw City	6			Bismarck	10	12.0	
Hartford	2	§		Marquette	4	0.0		Devils Lake	8		
New Haven	T.			Onaway	12			Williston	2	6.0	
Idaho.				Port Huron	T.	4.0		Ohio.			
Boise	T.			Sault Ste. Marie	T.	0.0		Cincinnati	T.	0.0	
Illinois.				South Haven	4			Columbus	T.		
Bloomington	4			Minnesota.				Dayton	T.		
Cairo	T.	*		Angus	7			Sandusky	2	2.0	
Chicago	2			Baudette	9			Toledo	3	3.0	
Dwight	7			Duluth	1	†		Wauson	1		
Hillsboro	4			Fergus Falls	6			Oregon.			
La Salle	6	3.0		Fort Kipley	4			Baker City	6		
Martinton	4			Glencoe	9			Pennsylvania.			
Monmouth	3			Glenside	9			Ephrata	1		
Peoria	7	0.0		Mankato	7			Erie	T.	1	
Springfield	3			Milan	10			Harrisburg	2	2.0	
Tilden	3			Minneapolis	9			Millintown	1		
Winnebago	13			Moorhead	12	10.0		Pittsburg	T.	0.0	
Indiana.				New Richland	4			Ridgway	2		
Evansville	1	0.0		Reeds	3			Seranton	1		
Jeffersonville	T.			St. Paul	7	5.5		Sellins Grove	1		
Enos	1			Windom	7			Towanda	1		
La Fayette	T.			Missouri.				Williamport	1		
Marion	T.			Columbia	1			Rhode Island.			
Iowa.				Hannibal	3	*		Providence	T.	0.0	
Atlantic	6			Kansas City	2	*		South Dakota.			
Carroll	3			La Monte	1			Huron	8	10.5	
Charles City	3			Maryville	3			Pierre	7	9.0	
Davenport	7	0.0		Olden	2			Rapid City	1		
Des Moines	3	0.0		Pacific	3			Yankton	10	8.0	
Dubuque	7	†		Rolla	2			Tennessee.			
Forest City	2			St. Louis	2	*		Memphis	T.	0.0	
Keokuk	2	5.0		Springfield	T.			Utah.			
Sioux City	5	5.5		Havre	T.			Modena	T.		
Kansas.				Kalispell	1			Salt Lake City	5		
Concordia	3			Miles City	T.			Vermont.			
Dodge City	3			Nebraska.				Brattleboro	2	4.0	
Iola	T.	0.0		Columbus	10			Burlington	3	0.0	
Manhattan	4			Imperial	8			Northfield	7		
Topeka	2			Lincoln	8			St. Johnsbury	4		
Wichita	2			Minden	6			Virginia.			
Kentucky.				Norfolk	7			Dale Enterprise	T.		
Lexington	T.			North Platte	9			Washington.			
Louisville	T.	0.0		Omaha	9	†		Spokane	T.		
Maine.				Pawnee City	3			West Virginia.			
Bangor	T.	†		St. Paul	4			Bayard	1		
Buckfield	5			Superior	11			Elkins	T.	0.0	
Danforth	4			Tekamah	6			Wisconsin.			
Eastport	3.5			Valentine	2			Ashland	2		
Gardiner	1			York	8			Eau Claire	4		
Greenville	3	7.5		New Hampshire.				Green Bay	11	4.0	
Leviston	1	2.5		Bethlehem	4			Koopnick	6		
Portland	1	0.0		Concord	3	1.0		La Crosse	6	2.0	
Presque Isle	2			Hanover	6			Madison	13		
Maryland.				Keene	1			Medford	1		
Darlington	T.			New Jersey.				Milwaukee	3	0.0	
Massachusetts.				Charlotteburg	3			Mount Horeb	7		
Adams	1			Flemington	T.			New London	14		
Amherst	2			New Mexico.				Portage	10		
Concord	T.			Santa Fe	1			Racine	4		
Fitchburg	4			New York.				Sheboygan	15		
Michigan.				Albany	7	†		Wausau	6		
Alpena	8	0.0		Binghamton	T.			Wyoming.			
Ann Arbor	1			Canton	1			Cheyenne	1		
Battle Creek	2			Chatham	2			Lander	6		
Big Rapids	4							Yellowstone Park	7		

* Floating ice.

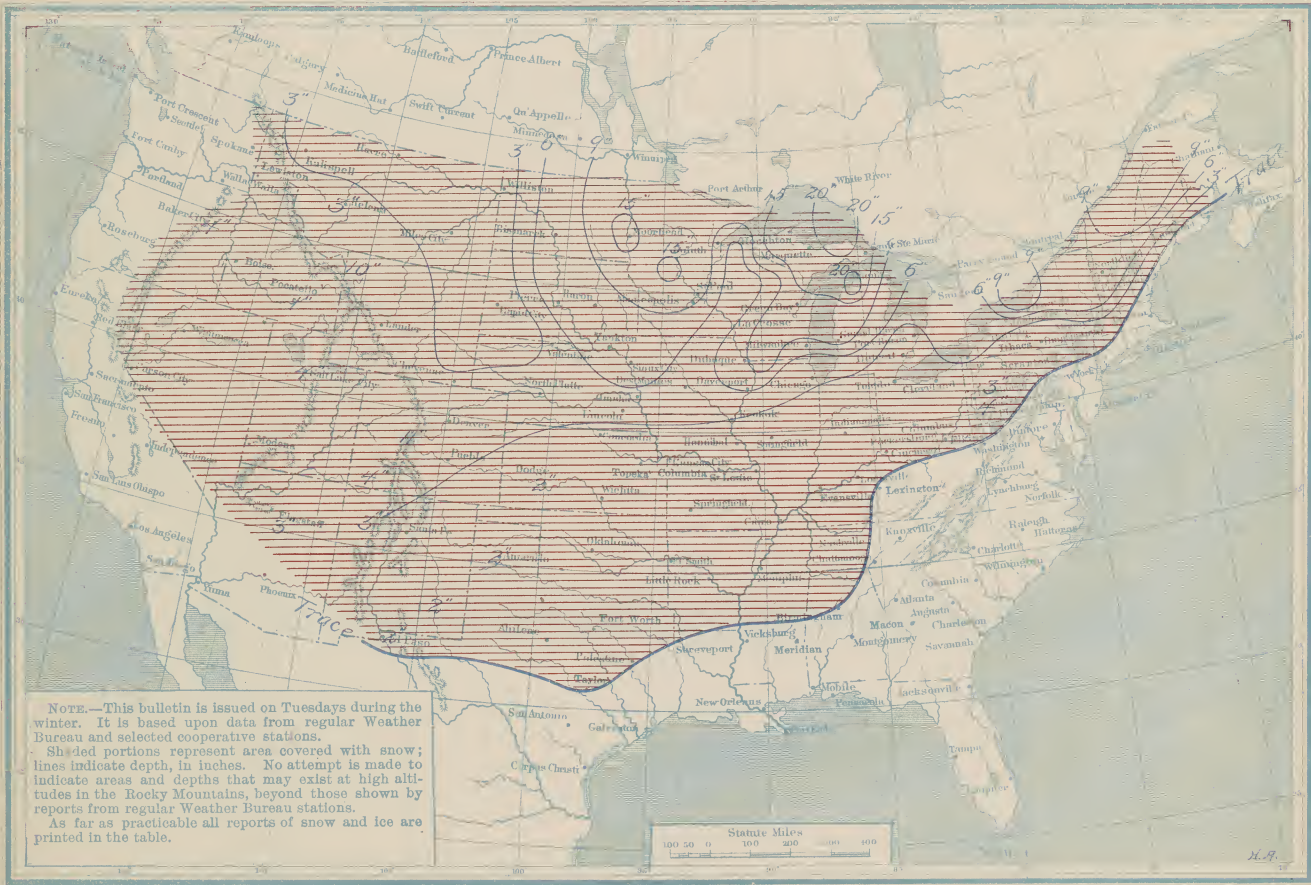
† Shore ice.

§ Slush ice.

T. indicates trace.

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Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., December 21, 1909.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 20, 1909.

DEPTH OF SNOW.

No well-defined storm, covering any extensive area, passed over the United States during the week just ended, and there has been no marked increase in the depth of the snow covering, except at a few widely scattered points. Local snows occurred, however, in many localities and the area covered with snow at 8 p. m. of the 20th was considerably greater than at the same hour one week ago.

A large area extending from central Texas northward over the western portion of the Great Plains and including the eastern slopes of the Rocky Mountains, with but a slight covering last week, now has a uniform covering ranging from 2 to 5 inches on the lower levels and from 5 to 10 inches at the higher stations, with probably much greater depths in the high mountains.

There has been a general increase over the upper Mississippi Valley and thence eastward over the Lake region and New England, the greatest increases, 5 to 10 inches, occurring over the upper Lake region on the southern shores of Lakes Erie and Ontario and in northern New England. The depths over these districts now range from 9 to 15 inches and in portions of northern Michigan as much as 20 inches covers the ground.

Considerable snow disappeared from the lower Missouri and middle Mississippi valleys, although that region is still generally covered with several inches of snow.

While snow covers a large portion of the country, the depths are generally very slight over the more southerly portions, especially in the Ohio Valley and Middle Atlantic States, the lower Mississippi Valley, and in the Plateau region.

ICE IN RIVERS AND HARBORS.

Continued cold weather for the season has resulted in the formation of much additional ice during the week over practically all northern districts east of the Rocky Mountains. The Missouri River and its tributaries from Omaha northward are covered with ice ranging from 10 to 16 inches in thickness. In the Mississippi ice covers the river from Keokuk northward, the thickness ranging from 4 to 9 inches. South of Keokuk there is considerable shore ice, and floating ice is reported as far south as Memphis.

On the Ohio River where and floating ice are reported from most points, while considerable ice has formed on most of the rivers of the North Atlantic States. In New England the increase over last week has been but slight, the greatest thickness reported being but 9 inches at Greenville, Me., while most of the rivers are still open in their lower courses. On the Great Lakes considerable ice has formed in the harbors, especially those of Lakes Erie and Ontario, where the thickness ranges from 3 to 8 inches. In the upper Lakes there has been no marked change over the conditions reported last week, many of the harbors still remaining free from any considerable amount of ice.

The following special reports have been received:

Gardiner, Me., December 20.—There is a light covering of snow and ice on the lowlands in the Kennebec Valley south of Waterville. In the river there is shore ice south to Richmond, up to 3 inches in thickness; below there is open water.

Albany, N. Y., December 21.—In the Hudson Valley the depth of snow averages a trace; in the Mohawk it averages 4 inches. In the Mohawk River the ice averages 4 inches thick, while there is only shore and floating ice in the Hudson south of Troy.

Binghamton, N. Y., December 21.—In the upper Susquehanna and Unadilla watersheds the snow averages about 2 inches in depth; in the Chenango and Tioughnioga over 1 inch. The greatest depth reported is at Richfield Springs, N. Y., over 5 inches.

Pittsburg, Pa., December 20.—Snow has accumulated over the Allegheny, Kiskiminetas, Monongahela, and Youghiogheny watersheds, in depths from a trace to 4 inches. The Allegheny and Monongahela rivers have become frozen at many points. At this city there is shore ice 2 inches thick and floating ice in the channel.

Cairo, Ill., December 20.—There is floating ice in the Mississippi River here and shore ice in the Ohio.

Hannibal, Mo., December 20.—There is thin floating ice and considerable shore ice in the Mississippi River here.

F. H. BIGELOW, Professor of Meteorology.

Stations.		Stations.		Stations.	
Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.	Snow.	Ice in rivers, harbors, etc.
Alabama.	Inches	Michigan—Cont'd.	Inches	Ohio.	Inches
Birmingham.....	1	Houghton.....	16 4.0	Cincinnati.....	T.
Arizona.		Ironwood.....	15	Cleveland.....	T. 0.0
Flagstaff.....	3	Lansing.....	4	Columbus.....	T.
Arkansas.		Mackinaw City.....	15	Garrettsville.....	1
Fort Smith.....	T.	Mancelona.....	25	Philo.....	1
Little Rock.....	T. 0.0	Manistee.....	8	Sandusky.....	6.0
Colorado.		Marquette.....	16	Toledo.....	6.0
Denver.....	5	Menominee.....	11		
Durango.....	4	Newberry.....	24	Oklahoma.	T.
Leadville.....	11	Port Huron.....	1 6.0	Oregon.	
Pueblo.....	3	St. Ignace.....	5	Baker City.....	4
Connecticut.		Sault Ste. Marie.....	8	Pennsylvania.	
Hartford.....	†	South Haven.....	6	Erie.....	7 4.0
Idaho.		Woodlawn.....	16	Greenville.....	1
Boise.....	T.	Minnesota.		Harrisburg.....	2.0
Pocatello.....	1 0.0	Angus.....	7	Indiana.	3
Illinois.		Baudette.....	9	Parkers Landing.....	1
Bloomington.....	2	Beaulieu.....	5	Philadelphia.....	1
Cairo.....	*†	Collegeville.....	16	Pittsburg.....	T. †
Chicago.....	2	Fergus Falls.....	8	Scranton.....	T.
Dwight.....	5	Fort Ripley.....	6	Somerset.....	4
Hillsboro.....	2	Glencoe.....	13	Warren.....	2
La Salle.....	4 9.0	Grand Meadow.....	10	South Dakota.	
Martinton.....	2	Hinckley.....	12	Huron.....	8 13.5
Monmouth.....	2	Mankato.....	6	Pierre.....	6 13.0
Morrison.....	3	Milan.....	8	Rapid City.....	2
Peoria.....	4 6.5	Minneapolis.....	10	Yankton.....	8 12.0
Springfield.....	1	Moorhead.....	17 14.0	Tennessee.	
Winnabago.....	14	Reeds.....	5	Chattanooga.....	1 0.0
Indiana.		St. Paul.....	10 8.0	Memphis.....	T. *
Evansville.....	*	Windom.....	7	Nashville.....	T.
Knox.....	2	Missouri.		Texas.	
Iowa.		Hannibal.....	1 *†	Abilene.....	1
Atlantic.....	7	Kansas City.....	1	Amarillo.....	2
Charles City.....	3	St. Louis.....	T. *	El Paso.....	2
Davenport.....	6 6.0	Montana.		Fort Worth.....	2
Des Moines.....	2 0.0	Havre.....	1	Palestine.....	T.
Dubuque.....	6 4.5	Helena.....	3	Taylor.....	T.
Humboldt.....	5	Miles City.....	3	Utah.	
Keokuk.....	2 9.0	Nebraska.		Modena.....	T.
Sioux City.....	4 11.0	North Platte.....	3	Salt Lake City.....	4
Waterloo.....	6	Omaha.....	7 10.0	Vermont.	
Kansas.		Valentine.....	1	Brattleboro.....	4 6.0
Concordia.....	1	Nevada.		Burlington.....	1 0.0
Dodge City.....	2	Reno.....	T. 0.0	Northfield.....	8
Iola.....	2.0	Tonopah.....	T.	St. Johnsbury.....	6
Kentucky.		New Hampshire.		Virginia.	
Louisville.....	T. 0.0	Bethlehem.....	3	Richmond.....	T. 0.5
Louisiana.		Concord.....	T. 3.0	Washington.....	T.
Shreveport.....	T.	Hanover.....	7	Spokane.....	T.
Maine.		Keene.....	2	West Virginia.	
Bangor.....	†	New Jersey.		Bayard.....	2
Buckfield.....	8	Cape May.....	1.5	Elkins.....	T. 4.0
Cornish.....	4	New Mexico.		Glenville.....	1
Danforth.....	4	Roswell.....	2	Parkersburg.....	T. *
Eastport.....	5.5	Santa Fe.....	T.	Wisconsin.	
Gardiner.....	T. †	New York.		Ashland.....	3
Greenville.....	10 9.0	Albany.....	T. †	Eau Claire.....	6
Lewisville.....	T. 5.5	Buffalo.....	4	Green Bay.....	10 6.5
Millinocket.....	8	De Ruyter.....	1	Koopenok.....	5
Orono.....	1	Franklinville.....	4	La Crosse.....	6 6.0
Massachusetts.		Ithaca.....	8	Lake Mills.....	11
Adams.....	6	Lake Placid.....	8	Madison.....	12
Fitchburg.....	1	Le Roy.....	3	Medford.....	3
Michigan.		Olean.....	1	Milwaukee.....	3 0.0
Alpena.....	8 1.5	Oswego.....	13 3.0	New London.....	12
Aun Arbor.....	1	Plattsburg.....	4	Portage.....	12
Battle Creek.....	3	Port Jervis.....	2	Racine.....	3
Big Rapids.....	10	Rochester.....	T. 3.0	Sheboygan.....	12
Columet.....	17	Saranac Lake.....	6	Viroqua.....	6
Detroit.....	1 8.0	Saratoga Springs.....	8	Wausau.....	3
Escanaba.....	8	Syracuse.....	1	Wyoming.	
Grand Haven.....	10 *	North Dakota.		Cheyenne.....	2
Grand Marais.....	20	Bismarck.....	8 16.0	Lander.....	10
Grand Rapids.....	12	Devils Lake.....	10	Sheridan.....	10
		Williston.....	2 9.0	Yellowstone Park.....	10

* Floating ice.

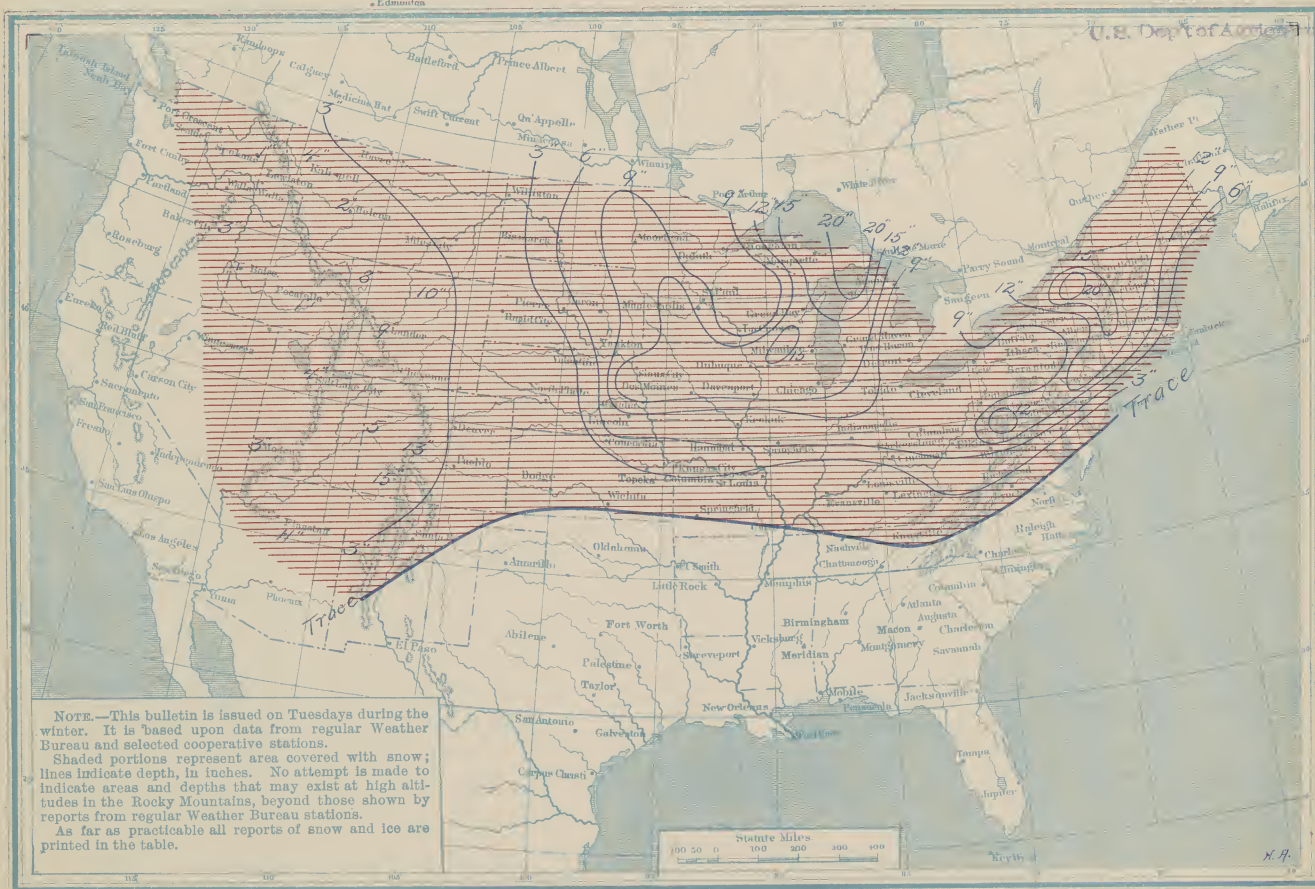
† Shore ice.

T. indicates trace.

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Office of Publication
JAN 4 1910



WASHINGTON, D. C., December 28, 1909.

DEPTH OF SNOW.

The widespread rain and snow storm that moved from the Southwest across the interior portions of the country during the 24-25th and along the Atlantic coast from the Chesapeake Bay to the Canadian Maritime Provinces during the 26-27th added a considerable amount of snow to that already on the ground from the middle and upper Mississippi Valley eastward to the Lake region and Ohio Valley, and larger amounts in the Atlantic coast States from northern Virginia to New England, where the heavy snow seriously affected telegraph and telephone lines, and high winds following caused much drifting, thereby blocking roads of all kinds and interfering seriously with steam, electric, and other means of transportation.

The snow-covered area at 8 p. m., December 27, was probably not greater than at the same time last week, but a large area along the Atlantic coast from Maryland and Delaware northward is now deeply covered which was practically bare or but slightly covered last week. At the same time, however, a considerable area from central and western Texas northward to Kansas and eastward over Arkansas, southern Missouri, and the lower Ohio drainage basin is now practically bare, which was then well covered. Several inches of snow have also disappeared over the western portion of the Great Plains from Kansas northward and also in the northern Rocky Mountain region.

From the lower Missouri and upper Mississippi valleys eastward there has been an increase of from 3 to 5 inches in the more westerly districts, while along the north Atlantic coast the increase ranges generally from 5 to 10 inches.

In the mountain regions of the West there has been a considerable increase in depth over the northern portions of Arizona and New Mexico, and generally in western Colorado and southern Utah. Elsewhere in the mountain and Plateau districts there has been no appreciable increase, and there is generally but little snow at the lower elevations.

ICE IN RIVERS AND HARBORS.

The weather during the past week continued moderately cold and conditions were favorable for the formation of considerable additional ice over the more northern districts. The ice in the Missouri River and its tributaries now ranges from 12 to 20 inches in thickness from Omaha northward, the increase during the week varying from 2 to 5 inches. In the Mississippi River and its tributaries north of Keokuk, Iowa, the ice ranges from 5 to 12 inches in thickness, with an average increase during the week of about 3 inches. Below Keokuk there is considerable shore and floating ice as far south as Memphis.

The Ohio River and its principal tributaries still remain open in their lower courses, but in the upper portions they are frozen over at many points. In the main stream, floating and shore ice are reported generally from Pittsburg to Cairo. The rivers of the North Atlantic States contain considerable ice from the Potomac River northward, but there has been no marked increase, except in the rivers of New England where the increase ranges from 3 to 9 inches. Considerable additional ice formed during the week in the lower Lake region, and from 3 to 9 inches is now reported from the harbors of Lakes Erie and Ontario. No decided increase is reported from the upper Lakes and many of the harbors are still comparatively free from ice. No ice is reported from the main streams of the North Pacific coast region.

The following special reports have been received:

Gardiner, Me., December 27.—The depth of snow varies from nothing to 20 inches. This will delay lumbering operations. The ice in the Kennebec River is not of sufficient thickness to be cultivated safely.
Hartford, Conn., December 28.—The depth of snow ranges from 12 inches in Connecticut to 8 inches in the upper valley, the greatest depth being 18 inches. The upper Housatonic River is frozen. Navigation ceased on the Connecticut River on the 25th.
Albany, N. Y., December 28.—In the Hudson Valley the depth of snow averages 11 inches; in the Mohawk it averages 7 inches. In the Hudson River the ice averages 3 inches thick; in the Mohawk it averages 5 inches.
Pittsburg, Pa., December 27.—The depth of snow ranges from about 5 inches in the lower levels to from 8 to 18 inches over the higher and mountainous regions. The rivers remain frozen over at many points, and several gorges have formed in the Allegheny river and its tributaries.
Hannibal, Mo., December 27.—Shore ice covers about half of the Mississippi River here.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 27, 1909.

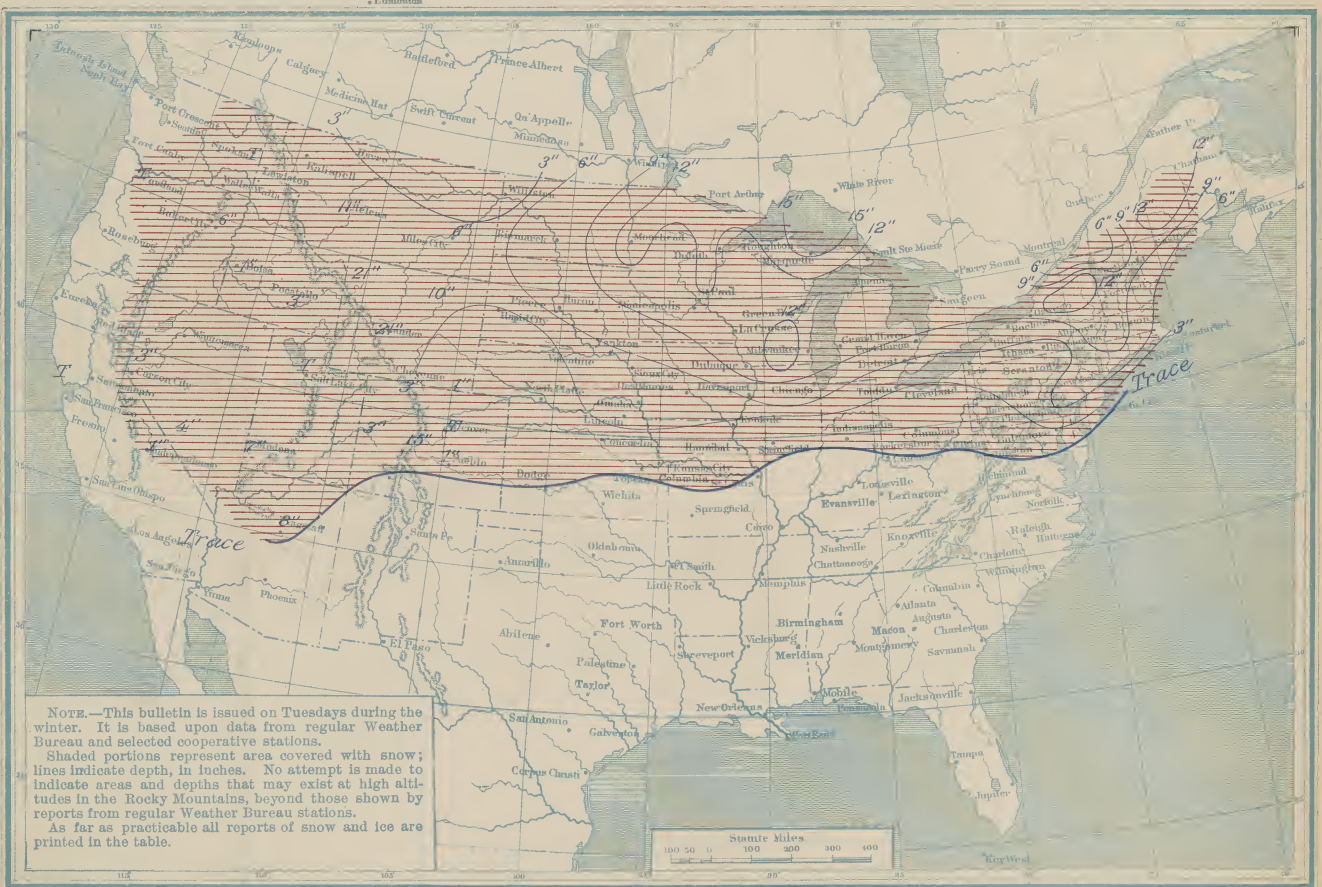
Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New York—Cont'd.	Inches	Inches
Flagstaff.....	11		Grand Marais.....	22		Syracuse.....	11	
Colorado.			Grand Rapids.....	12		North Dakota.		
Durango.....	15		Houghton.....	22	6.5	Bismarck.....	8	20.0
Grand Junction.....	5		Ironwood.....	22		Devils Lake.....	10	
Leadville.....	13		Lansing.....	8		Williston.....	2	10.0
Connecticut.			Mackinaw City.....	20		Ohio.		
Hartford.....	14	†	Mancelona.....	28		Bangorville.....	8	
New Haven.....	12	†	Manistee.....	12		Cadiz.....	7	
West Simsbury.....	12		Marquette.....	14	†	Cincinnati.....	3	*
Dist. of Columbia.			Menominee.....	16		Cleveland.....	5	5.0
Washington.....	2	†	Newberry.....	24		Columbus.....	5	
Idaho.			Port Huron.....	7	7.5	Gaerrettsville.....	8	
Pocatello.....	1	0.0	Sault Ste. Marie.....	14	†	Phillo.....	8	8.5
Illinois.			South Haven.....	14		Sandusky.....	8	8.5
Bloomington.....	8		Woodlawn.....	14		Toledo.....	9	8.5
Cairo.....	T.	*	Minnesota.			Oregon.		
Chicago.....	9		Angus.....	8		Baker City.....	3	
Dwight.....	14		Collegeville.....	15		Pennsylvania.		
La Salle.....	12	11.0	Duluth.....	3	12.5	Erie.....	8	8.0
Martinton.....	10		Fergus Falls.....	9		Everett.....	10	
Peoria.....	8	9.5	Fort Ripley.....	6		Gettysburg.....	9	
Springfield.....	6		Glencoe.....	14		Greenville.....	9	
Indiana.			Manakato.....	9		Harrisburg.....	4	4.0
Evansville.....	1	*	Milan.....	9		Indiana.....	8	
Indianapolis.....	7		Minneapolis.....	11		Milford.....	16	
Knox.....	14		Moorhead.....	15	15.0	Parkers Landing.....	7	
Marion.....	12		Redwood Falls.....	16		Philadelphia.....	14	1.0
Paoli.....	3		Reeds.....	7		Pittsburg.....	5	*†
Winona Lake.....	9		St. Paul.....	11	11.0	Ridgway.....	8	
Iowa.			Windom.....	7		Scranton.....	5	
Albia.....	9		Missouri.			Somerset.....	13	
Charles City.....	9		Brunswick.....	4		Towanda.....	4	
Davenport.....	12	5.0	Columbia.....	6	†	Warren.....	9	
Des Moines.....	12	5.0	Hannibal.....	6	†	Wellsboro.....	6	
Des Moines.....	13	8.0	Kansas City.....	4	*	Williamsport.....	4	
Humboldt.....	10		St. Louis.....	2		Rhode Island.		
Keokuk.....	5	12.0	Montana.			Kingston.....	12	
Sioux City.....	5	12.0	Helena.....	2		Providence.....	8	0.0
Kansas.			Kallispell.....	4		South Dakota.		
Concordia.....	3		Nebraska.			Huron.....	8	17.0
Iola.....	1	4.0	Columbus.....	11		Pierce.....	5	18.0
Manhattan.....	4		Lincoln.....	8		Yankton.....	7	13.0
Topeka.....	4		Norfolk.....	12		Utah.		
Kentucky.			North Platte.....	2		Modena.....	3	
Catlettsburg.....	2		Omaha.....	12	13.0	Salt Lake City.....	4	
Eubank.....	3		Pawnee City.....	5		Vermont.		
Lexington.....	2		Superior.....	13		Brattleboro.....	8	8.0
Maine.			Tekamah.....	13		Burlington.....	7	0.0
Bangor.....	3	9.5	New Hampshire.			Northfield.....	11	
Cornish.....	12		Bethlehem.....	10		Dale Enterprise.....	3	
Danforth.....	12		Concord.....	5	9.0	Lynchburg.....	4	†
Eastport.....	3	7.0	Durham.....	11		Mount Weather.....	9	
Gardiner.....	8	4.0	Hanover.....	12		West Virginia.		
Greenville.....	12	14.0	Atlantic City.....	3		Bayard.....	15	
Lewiston.....	5	8.5	Charlotteburg.....	14		Elkins.....	9	0.0
Orono.....	5		Hightstown.....	9		Fairmont.....	4	
Portland.....	8	0.0	New York.			Glenville.....	6	
Maryland.			Albany.....	9	1.0	Parkersburg.....	1	†
Baltimore.....	7	1.5	Binghamton.....	5		Princeton.....	10	
Frederick.....	7		Buffalo.....	11	3.0	Rowlesburg.....	13	
Oakland.....	14		Canton.....	6		Wisconsin.		
Massachusetts.			Do Ruyter.....	10		Green Bay.....	13	8.5
Adams.....	18		Franklinville.....	5		Koepnick.....	7	
Boston.....	10		Geneva.....	7		La Crosse.....	10	6.0
Concord.....	17		Ithaca.....	5		Lake Mills.....	13	
Fitchburg.....	15		Lake Placid.....	38		Madison.....	15	
Mansfield.....	13		Le Roy.....	6		Milwaukee.....	10	0.0
Michigan.			New York.			Portage.....	16	
Alpena.....	9	3.0	Osceola.....	16	4.0	Racine.....	10	
Ann Arbor.....	6		Plattsburg.....	5		Sheboygan.....	10	
Battle Creek.....	10		Port Jervis.....	13		Viroqua.....	9	
Big Rapids.....	18		Rochester.....	6	2.5	Wyoming.		
Calumet.....	5	9.0	Saratoga Springs.....	14		Lander.....	9	
Detroit.....	8	*	Setauket.....	3		Sheridan.....	10	
Escanaba.....	11	0.0				Yellowstone Park.....	8	
Grand Haven.....	11	0.0						

*Floating ice.

†Shore ice.

T. indicates trace.

Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., *January 4, 1910.*

DEPTH OF SNOW.

No general storm area moved across the country during the past week, and only light local snows occurred in the districts east of the Rocky Mountains.

In the middle and northern portions of the Mountain and Plateau districts, however, there was considerable snow, especially in the high mountains of Wyoming, Montana, Idaho, Nevada, and portions of Utah and Colorado, and the development of a storm of wide extent at this writing over the southwest gives promise of considerable additional snow in the middle Rocky Mountain and Plains States and probably farther east during the next day or two.

The progress etward of a marked warm wave during the closing days of December and the first day or two of the New Year caused the disappearance of a large amount of snow over the lower Missouri and middle Mississippi valleys, and thence eastward over the lower Lake region and Ohio Valley to the middle Atlantic coast and New England. Large areas in the middle Mississippi and Ohio valleys and Middle Atlantic States are now practically free of snow which were well covered one week ago. Over the greater part of the winter wheat growing States the ground was generally snow-covered during the prevalence of the severe cold weather, and it afforded much needed protection to the growing wheat.

From the lower Missouri Valley northwestward to the mountain regions of Montana the ground is covered with snow to depths ranging from 3 to 10 inches at the lower levels, with depths of 20 inches or more at the higher stations and still larger amounts in the high ranges from thence southward to Colorado, and there is considerable snow also in the mountains of Arizona, New Mexico, and California. In the upper Mississippi Valley, Lake region, northern portions of the Middle Atlantic States, and in New England, the depth ranges from 6 to 15 inches, with somewhat greater amounts in the upper Michigan Peninsula and in the Adirondack Mountain region.

ICE IN RIVERS AND HARBORS.

Continued cold weather during the past week resulted in a material increase in the thickness of ice in the rivers and harbors of practically all northern districts. In the Missouri River and its tributaries the increase ranges from 2 to 6 inches, and the thickness of the ice now ranges between 15 and 24 inches from Omaha northward, with shore ice of varying thickness from the latter place to its mouth. In the upper Mississippi and its tributaries the increase ranges from 2 to 8 inches, and from Hannibal northward the main stream is closed, with ice ranging from 8 to 12 inches in thickness. The Ohio River still remains open, but much ice is running throughout its course.

The rivers of the north Atlantic coast, although of a course, contain considerable ice, the increase in thickness during the week ranging from about 2 inches in the more southerly rivers to about 5 inches in New England. Over the rivers and lakes of the last-named district the ice ranges from 6 to nearly 20 inches in thickness. In the harbors of the Lake region there has been a general increase of from 1 to 5 inches, but some of the ports, especially in the southern portion of Lake Michigan, still remain comparatively free of ice.

The following special reports have been received:

Gardiner, Me., January 3.—Snow covers about one half of the land surface in the Kennebec Valley. The ice in nearby ponds is 7 inches thick.

Brattleboro, Vt., January 3.—The ice harvest in the Connecticut River here has begun.

Albany, N. Y., January 4.—In the Hudson Valley the depth of snow ranges from 6 inches at Athens to 16 inches at Thurman; in the Mohawk it averages 5 inches. The ice in the Hudson River averages 7 inches thick; in the Mohawk it averages 9 inches.

Pittsburg, Pa., January 3.—The snow has diminished greatly over the upper Allegheny watershed, the depth averaging 3 inches, and has practically disappeared over the other watersheds. The ice is now moving out of the Monongahela, Youghiogheny and Kiskimincus rivers.

Evansville, Ind., January 4.—The ice in the Ohio River is gorged above and below the city.

Hannibal, Mo., January 3.—The channel of the Mississippi River here is open below the bridge.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 3, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
<i>Arizona.</i>	<i>Inches</i>	<i>Inches</i>	<i>Michigan—Cont'd.</i>	<i>Inches</i>	<i>Inches</i>	<i>New York—Cont'd.</i>	<i>Inches</i>	<i>Inches</i>
Flagstaff	8		Grand Haven	10	0.0	Sackett		
<i>California.</i>			Grand Rapids	10		Syracuse		
Independence	1		Hillsdale	4		Watertown	12	
<i>Colorado.</i>			Houghton	17	7.5	Wedgefoot	4	
Denver	T.		Marquette	15	†	<i>North Dakota.</i>		
Grand Junction	3		Port Huron	10	9.5	Bismarck	8	24.0
Leadville	15		Sault Ste. Marie	8	4.5	Devils Lake	9	
Pueblo	1		<i>Minnesota.</i>			Williston	2	16.0
<i>Connecticut.</i>			Baudette	12		<i>Ohio.</i>		
Hartford	6	1.5	Beaulieu	8		Bangorville	T.	
New Haven	6		Duluth	3	17.0	Cadiz	T.	
West Cornwall	9		Fergus Falls	10		Cincinnati	T.	*
West Simsbury	10		Fort Ripley	10		Cleveland	T.	9.0
<i>Delaware.</i>			Glencoe	5		Garrettsville	3	
Delaware City	6		Grand Meadow	13		Sandusky	T.	9.0
<i>Dist. of Columbia.</i>			Hineley	12		Toledo	1	8.5
Washington	†		Mankato	7		Wauseon	4	
<i>Idaho.</i>			Minneapolis	11		<i>Oregon.</i>		
Boise	1		Moorhead	16	18.0	Baker City	6	
Pocatello	3		New Richland	8		Portland	T.	0.0
<i>Illinois.</i>			Redwood Falls	16		<i>Pennsylvania.</i>		
Bloomington	3		Reeds	5		Ephrata	8	
Chicago	6		St. Paul	11	12.5	Erie	4	8.5
Dwight	6		State Sanatorium	9		Gettysburg	T.	
La Salle	6	12.5	Windom	7		Harrisburg	4	5.0
Monmouth	5		<i>Missouri.</i>			Millintown	6	
Peoria	4	10.5	Columbia	T.		Millford	7	
Winnebago	14		Hannibal	1	8.0	Parkers Landing	3	
<i>Indiana.</i>			Kansas City	T.	†	Philadelphia	5	3.0
Evansville	T.	*	Maryville	4		Pittsburg	T.	*
Indianapolis	6		St. Louis		†	Seranton	2	5.0
Knox	T.		Springfield	T.		Selins Grove	2	
La Fayette	2		<i>Montana.</i>			Warren	3	
Marion	4		Havre	11		<i>Rhode Island.</i>		
Winona Lake	4		Helena	T.		Kingston	4	
<i>Iowa.</i>			Miles City	6		Narragansett	1	
Carroll	3		<i>Nebraska.</i>			Providence	4	*
Charles City	6		Columbus	7		<i>South Dakota.</i>		
Creston	4		Lincoln	3		Huron	7	20.5
Davenport	8	13.5	North Platte	T.		Pierre	6	20.0
Des Moines	3	11.0	Omaha	7	15.0	Rapid City	2	
Dubuque	8	10.5	St. Paul	4		Yankton	4	13.0
Esther City	5		Tekamah	11		<i>Utah.</i>		
Keokuk	4		Valentine	T.		Modena	7	
Sioux City	1	12.0	<i>Nevada.</i>			Salt Lake City	T.	
<i>Kansas.</i>			Reno	3	0.0	<i>Vermont.</i>		
Concordia	1		Tonopah	4		Battleboro	5	13.0
Dodge City	T.		<i>New Hampshire.</i>			Burlington	6	0.0
Iola	1	6.5	Bethlehem	7		Northfield	10	
Manhattan	1		Concord	5	8.0	<i>Virginia.</i>		
Topeka	T.		Keene	8		Blacksburg	1	
<i>Maine.</i>			<i>New Jersey.</i>			Mount Weather	T.	
Bangor	1	11.0	Belvidere	8		Woodstock	1	
Cornwall	8		Cape May	T.	1.5	<i>Washington.</i>		
Eastport	1	10.5	Charlotteburg	3		North Head	T.	
Gardiner	4	6.0	Flomington	4		Spokane	T.	
Greenville	11	13.0	Hightstown	4		<i>West Virginia.</i>		
Lewiston	4	11.0	<i>New York.</i>			Fairmont	T.	
Millinocket	12		Albany	7	6.0	Parkersburg	1	†
Orono	4		Binghamton	1		Rowlesburg	1	
Portland	5	0.0	Buffalo	7	5.0	<i>Wisconsin.</i>		
<i>Maryland.</i>			Canton	3		Green Bay	11	10.0
Baltimore	T.	0.0	Cutchogue	1		Koepenick	7	
Oakland	T.		De Ruyter	9		La Crosse	8	9.0
<i>Massachusetts.</i>			Herkimer	6		Lake Mills	10	
Amherst	4		Ithaca	3		Madison	12	
Boston	8		Lake Placid	28		Medford	9	0.0
Fitchburg	6		Liberty	5		Milwaukee	9	
Mansfield	10		New York	3		Mount Horeb	11	
<i>Michigan.</i>			Ogdensburg	4		Portage	13	
Alpena	8		Olean	1		<i>Wyoming.</i>		
Calumet	17		Oswego	12	6.0	Cheyenne	1	
Chatham	13		Plattsburg	3		Lander	21	
Detroit	3	9.0	Port Jervis	4		Sheridan	10	
Escanaba	8	5.0	Rochester	5	5.0	Yellowstone Park	21	
			Saranac Lake	12				

F. H. BIGELOW, *Professor of Meteorology.*

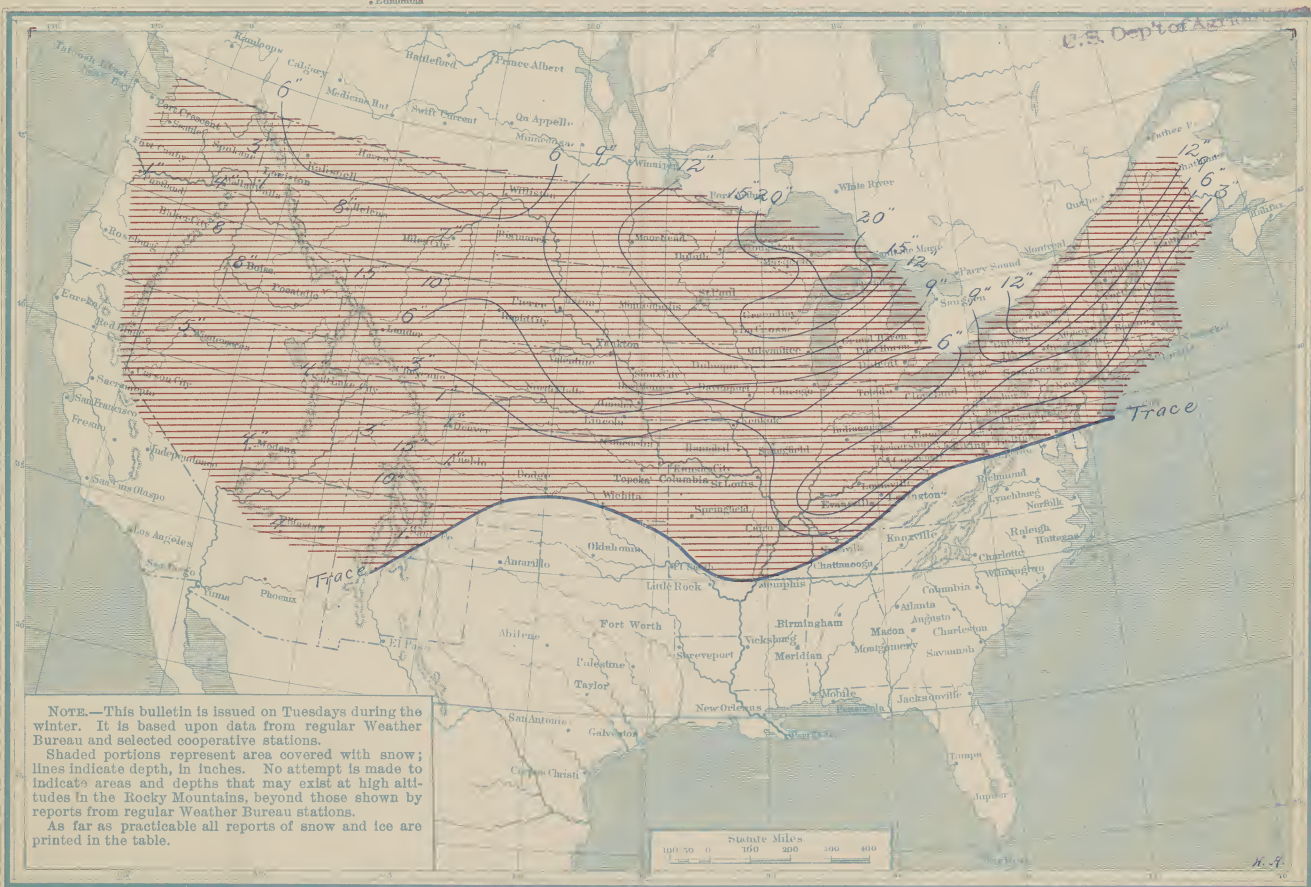
* Floating ice.

† Shore ice.

T indicates trace.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., January 11, 1910.
DEPTH OF SNOW.

General and rather heavy snows occurred from the Great Plains eastward over the lower Missouri and upper Mississippi valleys and Lake region during the progress northeastward of a rather severe storm over those regions from the 4th to the 5th. Considerable snow occurred also in the middle Mississippi and Ohio valleys, lower Lake region and New England, in connection with a rather severe rain and snow storm that moved from the middle Gulf to the New England coast during the 6th and 7th. Snow occurred also at intervals during the week over large portions of the middle and northern Plateau districts.

A small reduction in the depth of snow occurred along the Atlantic coast from Maryland to southern New England, due to the occurrence of rain on the 6th and 7th, and some melting occurred in the southern portions of the Rocky Mountain and Plateau regions. Elsewhere there was a general increase in the depth of the snow covering over the depths reported last week.

Snow from 5 to 10 inches in depth now covers the Ohio Valley, and in the northern portions of the Middle Atlantic States and over much of New England the depths range from 5 to 15 inches, with extreme depths of 30 inches or more in the Adirondack Mountain region. From the middle Mississippi Valley westward over the central portions of Missouri, Kansas, and Colorado, and thence northward to the Canadian boundary the ground is well covered with snow, affording ample protection to the growing wheat from the severe cold that prevailed during portions of the week. On the other hand, however, the deep covering of snow on the great sheep and cattle ranges of the northern Plains, Rocky Mountain and Plateau districts, together with the severe cold, has resulted in much suffering to live stock, necessitated much expensive feeding, and will doubtless cause heavy loss of animal life in the more exposed and remote districts. Deep snow covers the upper Mississippi Valley and Lake region, the depths ranging from 1 to nearly 3 feet, and there appears to be a considerable accumulation in the mountain regions of the West.

ICE IN RIVERS AND HARBORS.

The weather during the past week has continued generally cold and favorable to the formation of considerable additional ice over that reported last week, and the streams and ponds of all northern districts are now generally ice-bound. The Missouri River is closed from Kansas City northward with ice from 13 to 26 inches in thickness, the average increase for the week ranging from 2 to 6 inches. In the Mississippi the ice ranges in thickness from 12 inches at Hannibal to 17 inches at St. Paul, with floating ice in the river as far south as Memphis and heavy gorges above and below St. Louis. The Ohio River still continues open, but with shore and floating ice throughout its entire length.

The upper portions of the rivers of the Atlantic coast are generally icebound from the Potomac River northward, the thickness increasing northward to a maximum of nearly 2 feet in the interior of Maine where the harvesting is being prosecuted under favorable conditions. The harbors of the lower Lake region are generally frozen over, the thickness ranging from 5 inches to slightly more than 1 foot. In the upper Lakes considerable ice formed during the week, though some of the harbors still remain comparatively free of ice.

The following special reports have been received:

Gardner, Me., January 10.—The conditions for lumbering operations and ice harvesting are at present very favorable.

Hartford, Conn., January 11.—The depth of snow remains unchanged in the Housatonic Valley; in the Connecticut Valley it ranges from 4 inches here to 16 inches in northern New Hampshire. The ice has gained from 4 to 6 inches in thickness.

Albany, N. Y., January 11.—In the Hudson Valley the depth of snow ranges from 5 inches at Athens to 25 inches at Corinth; in the Mohawk it averages 9 inches. The ice in the Hudson and Mohawk rivers averages 10 inches thick.

Binghamton, N. Y., January 11.—The depth of snow in the upper Susquehanna watershed ranges from 7 inches in the lower district to 13 in the upper, the least being 2 inches here and the greatest 18 inches at Richfield Springs, N. Y.

Hannibal, Mo., January 10.—The channel of the Mississippi River here remains open below the bridge.

St. Louis, Mo., January 10.—In the Mississippi River here the harbor is open, but the ice is gorged above and below.

F. H. BIGELOW, Professor of Meteorology.

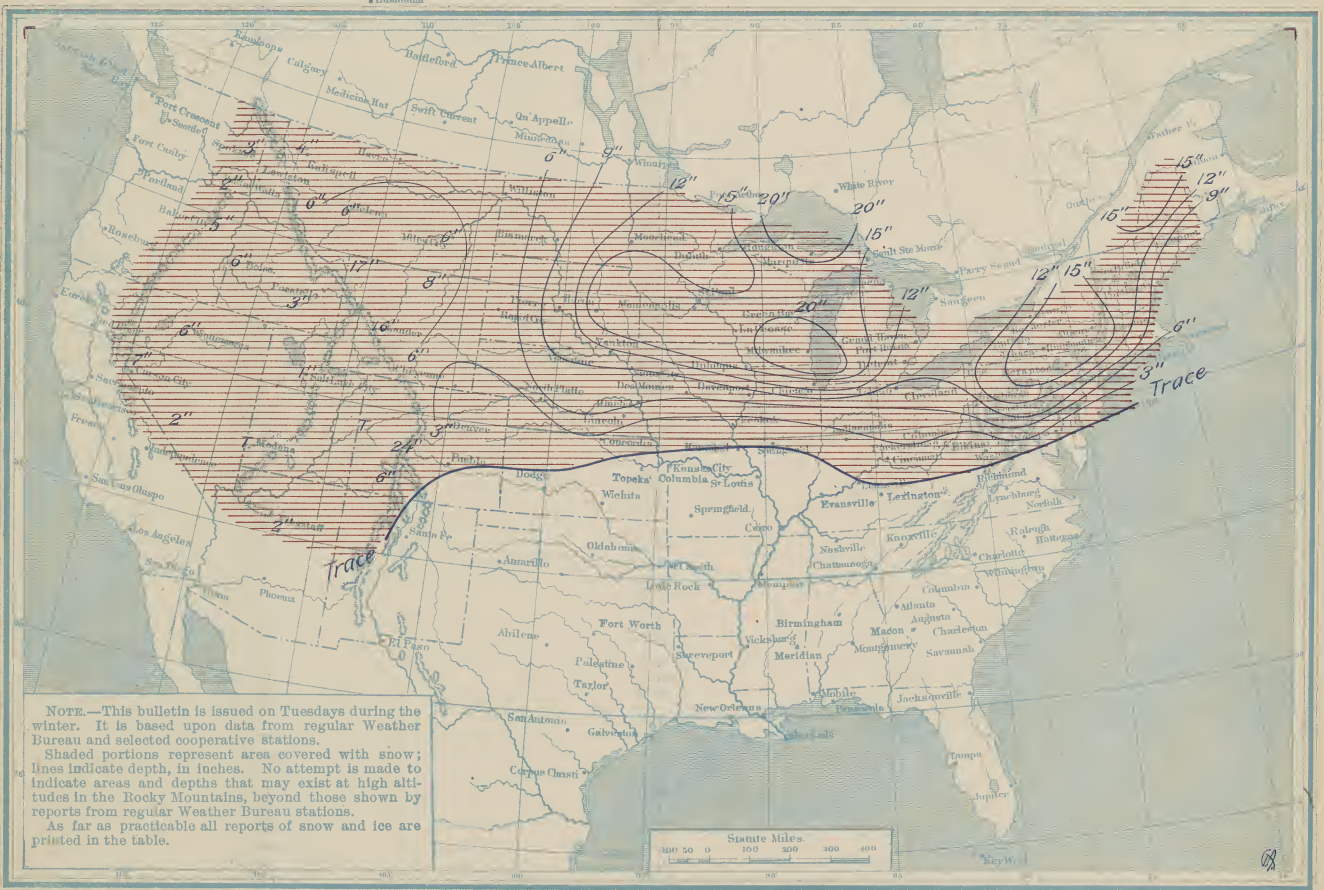
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 10, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	<i>Inches</i>	<i>Inches</i>	Michigan—Cont'd.	<i>Inches</i>	<i>Inches</i>	New York—Cont'd.	<i>Inches</i>	<i>Inches</i>
Flagstaff	4		Calumet	28		Rochester		5.0
Colorado.			Chatham	24		Saranac Lake	15	
Denver	1		Detroit	2	11.0	Saratoga Springs	18	
Durango	10		Escanaba	11	14.0	Syracuse	13	
Grand Junction	3		Grand Haven	14	*	Wedge wood	12	
Leadville	15		Grand Marais	30		North Dakota.		
Pueblo	1		Grand Rapids	13		Bismarck	9	26.0
Connecticut.			Houghton	24	8.0	Devils Lake	9	
Hartford	4	8.0	Iron Mountain	10		Williston	3	18.0
New Haven	4		Ironwood	20		Ohio.		
West Simsbury	6		LaSang	8		Bangorville	6	
Dist. of Columbia.			Mackinaw City	20		Cadiz	8	
Washington	*	†	Mancelona	36		Cincinnati	8	
Idaho.			Marquette	15	†	Cleveland	3	12.0
Boise	8		Menominee	21		Columbus	8	
Lewiston	1	0.0	Port Huron	6	11.0	Greenville	3	
Illinois.			Sault Ste. Marie	14	10.0	Philo	11	
Bloomington	4		Minnesota.			Sandusky	1	13.0
Calto	2	*	Baudette	14		Toledo	3	11.0
Chicago	8		Collegeville	14		Wauseon	3	
Dwight	7	14.0	Duluth	9	20.0	Waverly	12	
La Salle	7		Fergus Falls	13		Oregon.		
Monmouth	5		Fort Ripley	9		Baker City	8	
Peoria	6	13.0	Glencoe	15		Portland	1	0.0
Springfield	2		Hinckley	15		Pennsylvania.		
Indiana.			Mankato	12		Ephrata	5	
Evansville	4	*	Minneapolis	15		Erie	4	12.0
Knox	6		Moorhead	19	22.0	Gettysburg	2	
Marion	2		New Richmond	12		Harrisburg	1	9.0
Mount Vernon	5		Redwood Falls	20		Millford	4	
Seymour	4		Reeds	12		Philadelpia	3	7.5
Winona Lake	3		St. Paul	13	17.5	Pittsburg	7	0.0
Iowa.			State Sanatorium	11		Seranton	3	
Atlantic	12		Windom	12		Selins Grove	3	
Carroll	4		Missouri.			Rhode Island.		
Charles City	13		Columbia	1		Block Island	1	0.0
Davenport	11	15.0	Hannibal	2	12.0	Naragansett	2	
Des Moines	8	12.0	Kansas City	1	13.5	Providence	2	4.0
Dubuque	12	15.0	La Monte	1		South Dakota.		
Iowa City	6		Montana.			Huron	10	22.5
Keokuk	2	14.5	Havre	2		Pierre	8	21.0
Sioux City	7	23.0	Helena	3		Rapid City	2	
Waterloo	16		Kalispell	3		Yankton	6	17.0
Kansas.			Miles City	7		Tennessee.		
Concordia	3		Nebraska.			Memphis	2	*
Iola	T.	6.0	Columbus	8		Utah.		
Topeka	2		Imperial	4		Modena	4	
Kentucky.			Lincoln	5		Salt Lake City	4	
Bowling Green	9		North Platte	2		Vermont.		
Greensburg	5		Omaha	11	16.5	Brattleboro	6	19.0
Hopkinsville	7		St. Paul	7		Burlington	8	0.0
Lexington	5		Valentine	6		Northfield	12	
Louisville	5	0.0	Nevada.			St. Johnsburg	14	
Mount Sterling	10		Tonopah	2		Washington.		
Owensboro	8		Winemucca	5		Seattle	T.	
St. John	9		New Hampshire.			Spokane	3	
Maine.			Bethlehem	13		Walla Walla	4	
Bangor	3	12.0	Concord	5	8.0	West Virginia.		
Cornish	10		Hanover	14		Elkins	1	0.0
Eastport	1	13.0	New Jersey.			Parkersburg	5	†
Gardner	6	11.0	Belvidere	6		Wisconsin.		
Greenville	16	21.0	Cape May	T.	3.5	Green Bay	15	12.5
Lewiston	4	14.0	Flemington	4		Koepenick	10	
Millinocket	16		Hightstown	4		La Crosse	12	13.5
Portland	4	0.0	New York.			Lake Mills	18	
Maryland.			Albany	5	10.0	Madison	20	
Baltimore	†		Buffhamton	2		Medford	5	
Massachusetts.			Bingham	11	8.5	Milwaukee	11	0.0
Adams	8		Canton	7		New London	24	
Amherst	4		De Ruyter	16		Portage	24	
Boston	2		Ithaca	10		Racine	15	
Fitchburg	5		Lowville	30		Viroqua	15	
Nantucket	4	0.0	New York	1		Wyoming.		
Michigan.			Oswego	16	8.0	Cheyenne	1	
Alpena	9	6.0	Plattsburg	4		Sheridan	10	
Battle Creek	10		Port Jervis	4		Yellowstone Park	15	

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.

U. S. Capitol Building



WASHINGTON, D. C., January 18, 1910.
DEPTH OF SNOW.

A general storm that moved from the southern Plateau region north-eastward over the middle Plains, the middle Mississippi, and lower Ohio valleys to the Atlantic coast during the 12th to 15th was accompanied by general snows over the northern half of its course and by rain over the southern portion. As a result there was a considerable increase in the depth of the snow covering from the middle Missouri Valley eastward over Iowa, the southern portions of Minnesota, Wisconsin and Michigan, in the lower Lake region and over the Atlantic coast States from Maryland to New England. Warm southerly winds accompanied by the rain referred to above caused the disappearance of considerable snow in the southern portion of the Plateau regions and thence eastward over the southern portions of the Rocky Mountains and Great Plains districts to the middle Mississippi and lower Ohio Valleys. There was also some reduction in the depth of the snow covering in the upper Lake region and at points in the northern Rocky Mountain and Plateau districts.

At 8 p. m. of the 17th the ground was well covered with snow from southern Nebraska eastward over the middle Mississippi and upper Ohio valleys and northern Virginia to the Atlantic coast and thence northward to the Canadian boundary, the greatest depths, from 15 to 20 inches, occurring from eastern South Dakota to central lower Michigan and over northern and eastern Pennsylvania, the interior of New York, and over New England.

No great amount of snow appears to have occurred during the past week in the mountain districts of the West, but the continued cold weather has prevented any decided change in the depth of the snow covering. As a result the conditions over the great stock ranges of the Northwest have not materially improved over those referred to in last week's issue.

ICE IN RIVERS AND HARBORS.

The occurrence of considerable rainfall during the middle and latter part of the week, together with a change to warmer weather, resulted in the breaking up and disappearance of a small amount of ice in the streams of the more southerly districts in which ice had formed during preceding weeks, but over the more northerly districts the weather has continued sufficiently cold to still further increase the amounts previously reported. In the Missouri the ice appears to have broken up from Kansas City southward while in the upper stretches of the main river there has been a general increase in thickness. There has been but little change in the ice conditions on the Mississippi and its tributaries, except that there is generally less ice than was reported last week. The Ohio River is generally open, except that the floating ice has gorged in localities, and some damage from overflow on that account is probable. In the upper headwaters of the river the ice appears to be intact. Over the Atlantic coast districts there has been some breaking up and decrease in thickness of the ice over the more southern localities, but in the Hudson River and its tributaries and generally over New England there has been a considerable increase over the amounts reported last week. In the last named district the ice harvest has progressed under very favorable conditions and is reported as nearing completion in some localities. There has been a general increase in the amount of ice reported from the Great Lakes, the depths in the harbors of Lakes Erie and Ontario ranging from 8 to 15 inches, and somewhat greater depths are reported from Lake Superior and the northern portions of Lakes Huron and Michigan.

The following special reports have been received:

Gardiner, Me., January 17.—Throughout Maine the weather continues very favorable for lumbering operations and ice harvesting.

Brattleboro, Vt., January 17.—Ice cutting here is nearly done.
Albany, N. Y., January 18.—In the Hudson Valley the snow averages 14 inches in depth; in the Mohawk it averages 10 inches. In the Hudson River the ice averages 12 inches thick; in the Mohawk it averages 10 inches.

Binghamton, N. Y., January 18.—The depth of snow in the upper Susquehanna watersheds averaged 14 inches, the greatest being 26 inches and the least 8 inches.

Pittsburg, Pa., January 17.—The snow on the ground in the watersheds contributory to the upper Ohio River has generally increased several inches in depth. Ice continues generally throughout the Allegheny River, although the gorges have settled somewhat in height.

Hannibal, Mo., January 17.—The channel of the Mississippi River here remains open below the bridge.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 17, 1910.

Stations.	Snow.	Ice in rivers, har- bors, etc.	Stations.	Snow.	Ice in rivers, har- bors, etc.	Stations.	Snow.	Ice in rivers, har- bors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	Ohio.	Inches	Inches
Flagstaff	2		Iron Mountain	6		Bangorville	6	
Colorado.			Ironwood	18		Cadiz	5	
Durango	6		Lansing	16		Cincinnati	T	5
Leadville	24		Manistee	14		Cleveland	3	15.5
Connecticut.			Marquette	12	3.0	Columbus	2	
Hartford	10	14.0	Menominee	20		Garrettsville	12	
New Haven	10		Newberry	16		Philo	6	
West Cornwall	18		Onaway	12		Sandusky	7	13.0
West Simsbury	13		Port Huron	11	8.0	Toledo	8	13.0
Delaware.			Sault Ste. Marie	14	10.5	Wauseon	15	
Delaware City	5		South Haven	32		Waverly	5	
Dist. of Columbia.			Minnesota.			Oregon.		
Washington	†		Angus	8		Baker City	5	
Idaho.			Baudette	12		Pennsylvania.		
Boise	6		Beaulieu	7		Altoona	13	
Lewiston	6	*	Collegeville	12		East Mauch Chunk	14	
Pocatello	3	0.0	Duluth	8	22.0	Ephrata	12	
Illinois.			Fergus Falls	9		Erie	6	12.5
Bloomington	2		Fort Ripley	8		Gettysburg	14	
Calro	10	*	Mankato	14		Greenville	12	
Chicago	10		Minneapolis	14		Harrisburg	10	9.0
Dwight	6		Moorhead	17	22.0	Indiana	12	
La Salle	5	12.5	New Richmond	15		Parkers Landing	15	
Monmouth	3		St. Paul	13	18.0	Philadelphia	7	6.0
Peoria	4	15.0	Windom	18		Pittsburg	4	0.0
Winnebago	24		Missouri.			Ridgway	14	
Indiana.			Hannibal	T	12.0	Scranton	8	
Knox	6		Kansas City	*		Selins Grove	18	
Marion	1		Montana.			Somerset	6	
Winona Lake	5		Hayre	2		Warren	12	
Iowa.			Helena	3		Williamsport	7	
Albia	3		Kallispell	4		Rhode Island.		
Atlantic	8		Miles City	6		Block Island	4	0.0
Carroll	4		Nebraska.			Kington	12	
Charles City	13		Columbus	6		Narragansett	5	
Davenport	7	14.0	Lincoln	3		Providence	10	*
Des Moines	4	10.5	Norfolk	6		South Dakota.		
Dubuque	17	15.0	North Platte	1		Huron	18	23.0
Iowa City	6		Omaha	8	17.0	Pierre	11	22.0
Keokuk	T	16.0	St. Paul	6		Rapid City	3	
Sioux City	8	21.5	Tekamah	11		Yankton	10	16.0
Kansas.			Valentine	6		Utah.		
Concordia	1		York	6		Modena	T	
Kentucky.			Nevada.			Salt Lake City	1	
Catlettsburg	1		Reno	7	0.0	Vermont.		
Maine.			Tonopah	2		Brattleboro	9	22.0
Bangor	3	15.5	Winnemucca	6		Burlington	7	5.5
Buckfield	13		New Hampshire.			Northfield	12	
Cornish	9		Bethlehem	13		St. Johnsbury	14	
Danforth	16		Concord	6	13.0	Virginia.		
Eastport	T	14.0	Hanover	13		Mount Weather	4	
Gardiner	6	13.0	New Jersey.			Washington.		
Greenville	15	20.0	Belvidere	16		Spokane	3	
Lewiston	4	18.0	Cape May	3.5		Walla Walla	2	
Millinocket	16		Flemington	10		West Virginia.		
Portland	18	0.0	Hightstown	10		Bayard	3	
Maryland.			New York.			Fairmont	1	
Baltimore	5	*	Albany	8	12.0	Romey	5	
Massachusetts.			Binghamton	12		Rowlesburg	1	
Adams	20		Buffalo	10	10.5	Wisconsin.		
Boston	9		Cutohogue	9		Green Bay	12	13.5
Fitchburg	12		De Ruyter	19		Koepenick	11	
Nantucket	8	*	Geneva	13		La Crosse	14	9.5
Michigan.			Ithaca	7		Lake Mills	20	
Alpena	8	8.0	Liberty	10		Madison	4	
Battle Creek	23		New York	9		Medford	18	0.0
Calumet	21		Olean	13		Milwaukee	14	
Chatham	19		Oswego	16	10.5	New London	20	
Detroit	8	10.0	Rochester	9	6.0	Portage	20	
Escanaba	10	16.0	Syracuse	13		Racine	24	
Grand Haven	14	0.0	North Dakota.			Sheboygan	20	
Grand Marais	32		Bismarck	8	27.0	Wausau	6	
Grand Rapids	16		Devils Lake	9		Wyoming.		
Hillsdale	10		Williston	4	26.0	Lander	16	
Houghton	19	7.0				Devils Lake	8	
						Shelidan	17	
						Yellowstone Park	17	

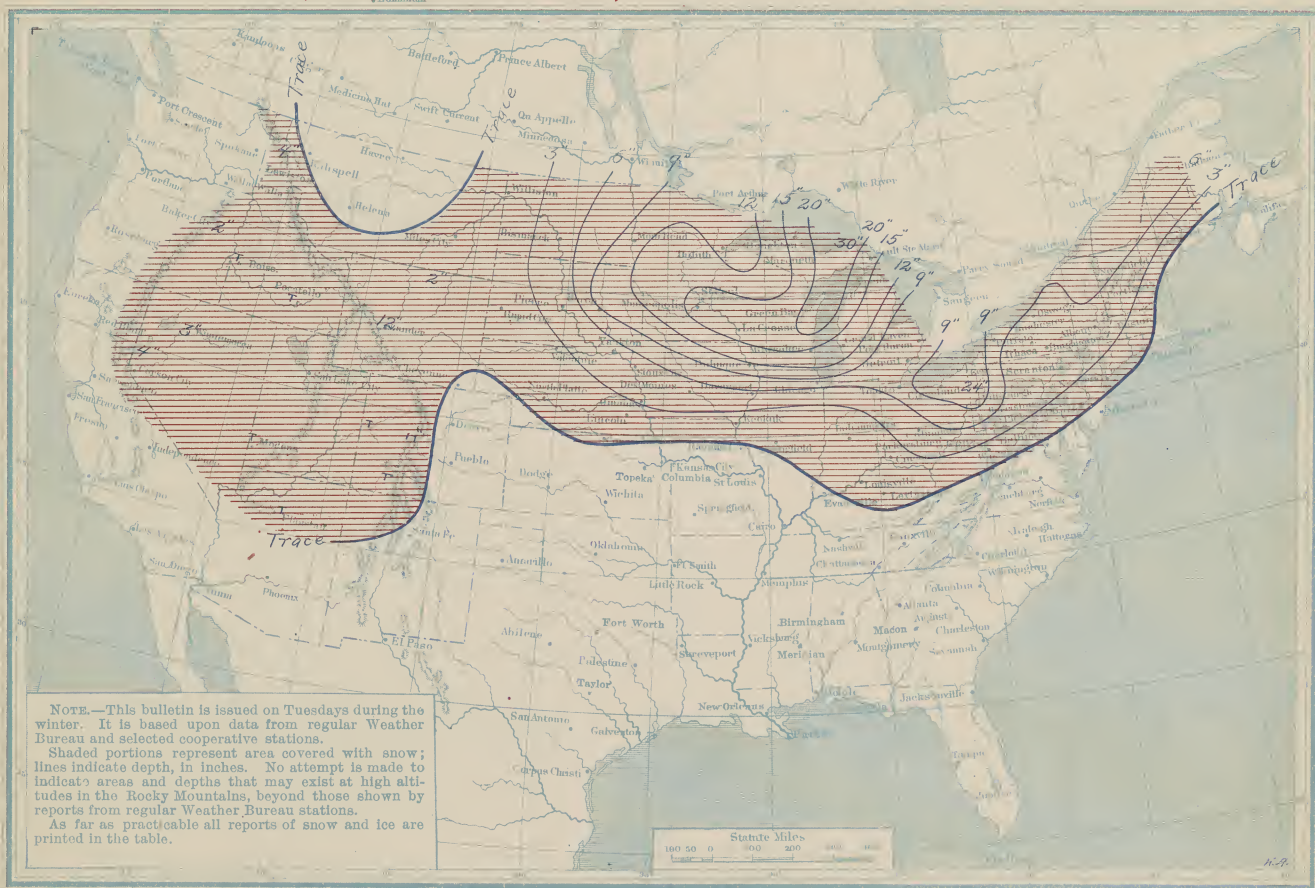
* Floating ice.

† Shore ice.

T. Indicates trace.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations. As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., January 25, 1910.
DEPTH OF SNOW.

During the week ending 8 p. m., January 24, 1910, two well-defined storm areas moved from the southwestern portion of the United States northeastward across the interior portions, accompanied over their southern courses by rain and over the more northern districts by rain and snow. These depressions brought generally warm weather in all districts, and as a result of both warmth and rain a large portion of the snow covering has disappeared. From the northern Rocky Mountain region southeastward over the Missouri and middle Mississippi valleys, the lower Lake region, and along the Atlantic coast from Maryland to New England the average decrease in the depth of snow has been from 3 to 10 inches. A slight increase has occurred in the upper Ohio Valley and over portions of the upper Lake region.

Only slight depths now remain over large portions of the northern Plains region and in portions of the lower Missouri and middle Mississippi valleys and the districts near the north Atlantic coast. From the eastern portions of the Dakotas and Nebraska eastward over the upper Mississippi Valley and Lake region and northern part of New England the depths now range from about 6 to 20 inches, the maximum depths, from 15 to 20 inches, being reported from the central and southern portions of Minnesota and Wisconsin, northern portions of Iowa and Illinois, over the State of Michigan, the northern portions of Ohio, and over western Pennsylvania.

Throughout the mountain regions of the West there appears to have been a general decrease of from 3 to 6 inches at the lower levels, but it is probable that due to generally continued cold weather the amounts in the higher elevations have not been materially reduced.

Reports from the mountain States at the end of December generally indicate that there was considerable snowfall in the higher mountains, but on account of the extreme cold weather prevailing not much melting or drifting had occurred, the snow lying largely as it fell and in a generally loose condition. The slightly warmer weather during the past week has doubtless tended to solidify the snow and put it in better condition to be conserved until later in the season.

ICE IN RIVERS AND HARBORS.

Warmer weather continued during the entire week, and together with considerable rain resulted in the breaking up of a large amount of ice over the lower courses of the rivers from the Ohio Valley eastward to the Atlantic, and northeastward over the Lake region and New England. No material change has occurred in the ice conditions over the Missouri and Mississippi rivers and their tributaries, the thickness in the Missouri ranging from about 18 inches at Omaha to 26 inches at Williston, and in the Mississippi from 12 inches at Hannibal to 18 inches at St. Paul. The ice has generally disappeared from the main stream and principal tributaries of the Ohio River, and it has practically disappeared also from the Potomac, Susquehanna, and other rivers of the Middle Atlantic States. A general diminution has also occurred in the thickness of the ice in the rivers of New England, where, on account of rain and high waters, the harvesting of ice has been discontinued. In the lower Lake region the thickness has diminished from 2 to 5 inches in most of the harbors, while on the upper Lakes there has been a slight increase at most points. Some damage resulted from the formation of gorges from running ice, especially at Port Deposit, Md., where on account of the heavy gorge in the Susquehanna, the river overflowed the town and did a large amount of damage.

The following special reports have been received:

Gardiner, Me., January 24.—The heavy rain of last week has caused a rise of 4 feet in the Kennebec River here and stopped all lumbering operations and ice harvesting.

Brattleboro, Vt., January 24.—The ice in the Connecticut River has broken up above here.

Albany, N. Y., January 25.—In the Hudson Valley the snow averages 6 inches in depth; in the Mohawk it averages 3 inches. Most of the ice went out of the Mohawk River on the 22d, and the Hudson is open from Stillwater to Coeymans, N. Y.; below Coeymans it averages 7 inches thick.

Pittsburg, Pa., January 24.—Rain on the 18th melted large quantities of snow and caused a flood, on which the ice in the Allegheny River and its tributaries went out; but light ice is now running in the Allegheny River, and heavy snowfall on the 21st and 22d has made depths slightly greater than last week.

Hannibal, Mo., January 24.—The channel of the Mississippi River here remains open below the bridge.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 24, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	Ohio.	Inches	Inches
Flagstaff.....	T.	.....	Grand Rapids.....	12	.....	Bangorville.....	7	.....
Colorado.	.....	.....	Houghton.....	19	8.0	Cadiz.....	6	.....
Durango.....	T.	.....	Iron Mountain.....	7	.....	Cincinnati.....	T.	0.0
Grand Junction.....	T.	.....	Lansing.....	6	.....	Cleveland.....	9	15.0
Leadville.....	17	.....	Mackinaw City.....	18	.....	Columbus.....	2	.....
Connecticut.	.....	.....	Manistee.....	20	.....	Dayton.....	T.	.....
Hartford.....	T.	.....	Maple Ridge.....	15	.....	Garrettsville.....	8	.....
New Haven.....	T.	.....	Marquette.....	20	↑	Philo.....	6	.....
West Simsbury.....	3	.....	Menominee.....	20	.....	Sandusky.....	11	12.0
Delaware.	.....	.....	Onaway.....	12	.....	Tiffin.....	7	.....
Idaho.	.....	.....	Port Huron.....	7	14.0	Toledo.....	3	8.0
Boise.....	T.	.....	Saginaw.....	8	.....	Wauseon.....	6	.....
Pocatello.....	T.	0.0	St. Ignace.....	20	.....	Waverly.....	2	.....
Wallace.....	4	.....	Sault Ste. Marie.....	15	12.5	Oregon.	.....	.....
Illinois.	.....	.....	South Haven.....	18	.....	Baker City.....	2	.....
Bloomington.....	2	.....	Woodlawn.....	20	.....	Pennsylvania.	.....	.....
Cairo.....	.....	.....	Minnesota.	.....	.....	Altoona.....	6	.....
Chicago.....	.....	.....	Angus.....	7	.....	Erie.....	10	7.5
La Salle.....	4	13.5	Baudette.....	11	.....	Everett.....	2	.....
Peoria.....	1	13.0	Collegeville.....	10	.....	Gordon.....	1	.....
Springfield.....	T.	.....	Duluth.....	9	25.0	Greensboro.....	4	.....
Winnebago.....	18	.....	Fergus Falls.....	8	.....	Greenville.....	12	.....
Indiana.	.....	.....	Fort Ripley.....	7	.....	Harrisburg.....	2	*
Bloomington.....	T.	.....	Hinckley.....	16	.....	Indiana.....	13	.....
Indianapolis.....	T.	.....	Mankato.....	14	.....	Millford.....	4	.....
Knox.....	2	.....	Milan.....	8	.....	Parkers Landing.....	T.	*
Marion.....	T.	.....	Moorhead.....	14	24.0	Philadelphia.....	6	*
Winona Lake.....	3	.....	Mount Iron.....	9	.....	Pittsburg.....	T.	.....
Iowa.	.....	.....	New Richland.....	14	.....	Seranton.....	T.	.....
Albia.....	1	.....	Redwood Falls.....	20	.....	Selins Grove.....	3	.....
Carroll.....	2	.....	Reeds.....	15	.....	Somerset.....	10	.....
Charles City.....	12	.....	St. Paul.....	12	18.0	Warren.....	11	.....
Davenport.....	6	15.5	State Sanatorium.....	10	.....	Rhode Island.	.....	.....
Des Moines.....	2	10.5	Windom.....	18	.....	Narragansett.....	T.	.....
Dubuque.....	10	13.0	Missouri.	.....	.....	Providence.....	T.	0.0
Easterville.....	3	.....	Hannibal.....	T.	12.0	South Dakota.	.....	.....
Iowa City.....	3	.....	Maryville.....	2	.....	Huron.....	12	23.0
Keokuk.....	T.	15.0	Montana.	.....	.....	Pierre.....	5	24.0
Sioux City.....	2	20.5	Helena.....	2	.....	Rapid City.....	T.	.....
Waterloo.....	14	.....	Miles City.....	1	.....	Yankton.....	2	14.0
Kansas.	.....	.....	Nebraska.	.....	.....	Tennessee.	.....	.....
Concordia.....	T.	.....	Columbus.....	3	.....	Memphis.....	*	.....
Kentucky.	.....	.....	Imperial.....	T.	.....	Utah.	.....	.....
Eubank.....	T.	.....	Lincoln.....	T.	.....	Modena.....	T.	.....
Lexington.....	T.	.....	North Platte.....	T.	.....	Brattleboro.....	4	20.0
Louisville.....	T.	0.0	Omaha.....	4	17.5	Burlington.....	T.	0.0
Maine.	.....	.....	St. Paul.....	2	.....	Northfield.....	7	.....
Bangor.....	13.0	.....	Tekamah.....	6	.....	St. Johnsbury.....	3	.....
Buckfield.....	4	.....	Valentine.....	T.	.....	Virginia.	.....	.....
Cornish.....	3	.....	Nevada.	.....	.....	Dale Enterprise.....	T.	.....
Eastport.....	14.0	.....	Reno.....	4	0.0	Mount Weather.....	2	.....
Gardiner.....	8.0	.....	Winnemucca.....	3	.....	Stephens City.....	1	.....
Greenville.....	6	19.0	New Hampshire.	.....	.....	Woodstock.....	1	.....
Lewiston.....	13.0	.....	Bethlehem.....	T.	.....	West Virginia.	.....	.....
Millinocket.....	7	.....	Concord.....	T.	10.0	Bayard.....	3	.....
Presque Isle.....	5	.....	Keene.....	T.	.....	Elkins.....	1	0.0
Maryland.	.....	.....	New Jersey.	.....	.....	Fairmont.....	4	.....
Baltimore.....	T.	0.0	Flemington.....	T.	.....	Glenville.....	8	.....
Frederick.....	T.	.....	New York.	.....	.....	Rowlesburg.....	2	.....
Oakland.....	3	.....	Albany.....	T.	↑	Wisconsin.	.....	.....
Massachusetts.	.....	.....	Binghamton.....	T.	.....	Eau Claire.....	8	.....
Concord.....	2	.....	Buffalo.....	7	9.0	Green Bay.....	11	12.0
Fitchburg.....	1	.....	De Ruyter.....	10	.....	Koepenick.....	10	.....
Michigan.	.....	.....	Geneva.....	2	.....	La Crosse.....	12	10.5
Alpena.....	13	9.0	Illness.....	2	.....	Lake Mills.....	23	.....
Ann Arbor.....	3	.....	Olean.....	3	.....	Madison.....	18	.....
Battle Creek.....	10	.....	Oswego.....	8	10.0	Medford.....	6	.....
Big Rapids.....	6	.....	Port Jervis.....	3	.....	Milwaukee.....	16	0.0
Calumet.....	23	.....	Rochester.....	2	0.0	New London.....	12	.....
Chatham.....	20	.....	Syracuse.....	3	.....	Portage.....	16	.....
Detroit.....	6	10.0	Wedgwood.....	3	.....	Racine.....	12	.....
Escanaba.....	11	16.5	North Dakota.	.....	.....	Wyoming.	.....	.....
Grand Haven.....	10	0.0	Bismarck.....	4	.....	Lander.....	12	.....
Grand Marais.....	30	.....	Devils Lake.....	6	.....	Sheridan.....	2	.....
			Williston.....	1	26.0			

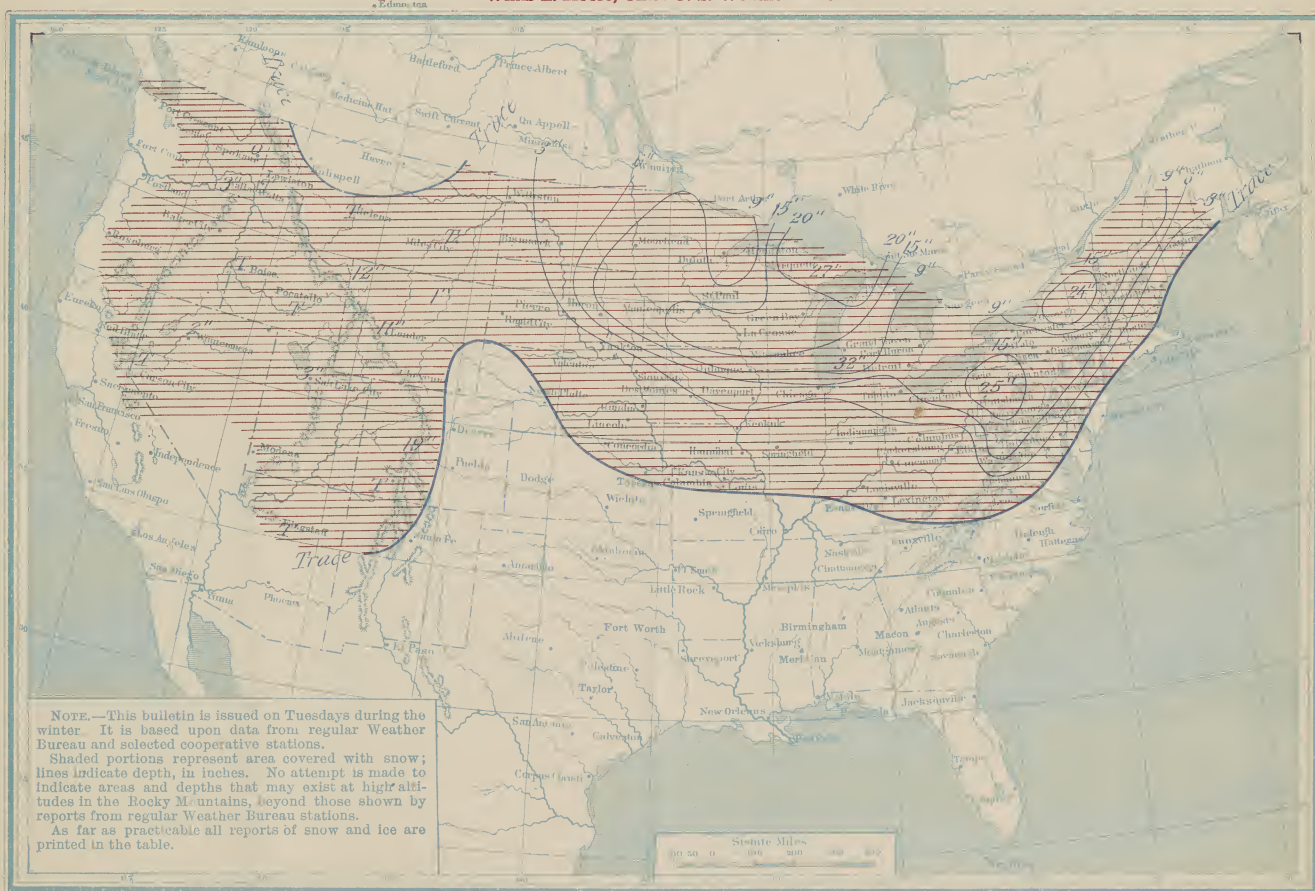
*Floating ice.

†Shore ice.

T. Indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., February 1, 1910.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 31, 1910.

DEPTH OF SNOW.

The general storm near the middle of the week that moved from the northern Rocky Mountain region to the Great Lakes and New England increased the depth of snow several inches from the upper Mississippi Valley eastward to the upper Lakes. A storm that moved from the southwest over the Gulf States and Atlantic coast was accompanied by general snows from central Virginia northward to New England, adding from 2 to 6 inches to that already on the ground over these districts.

A small amount of snow disappeared from the lower levels of the northern Rocky Mountain district and from thence southeasterly over the lower Missouri and middle Mississippi valleys and lower Lake region.

There was some increase in depths at local points in the Plateau and middle Rocky Mountain districts, but no general storm passed over these regions, and it is probable there has been no marked increase in the amount of snow in the high mountain ranges.

Over the eastern portion of the Great Plains, as far south as Nebraska and thence eastward, the ground is generally well covered with snow. Average depths of from 8 to 15 inches prevail from the eastern portions of the Dakotas to the Lake region with maximum depths from 2 to 3 feet in northern Michigan.

Over the interior of the north Atlantic States and northern Appalachian Mountain regions the depths range from 6 to 8 inches in northern Virginia to 18 to 20 inches in northern New York and somewhat less depths in northern New England.

The reduction of the snow depth over the great ranges in the Northwest and the generally moderate weather have been very beneficial to stock interests, and the prospects of serious losses on account of severe cold and lack of food during the early part of the winter have been largely dissipated.

ICE IN RIVERS AND HARBORS.

As a result of the continued moderate weather, together with considerable rain, there has been but little change in the ice conditions from those reported one week ago.

There has been a general decrease in the lower portions of the Missouri and but little increase over the upper reaches of the main stream or its tributaries. In the Mississippi the channel appears to be open from Hannibal southward. North of Hannibal the ice ranges from 12 to 18 inches in thickness over the main stream and its tributaries.

The Ohio River is open from Pittsburg to Cairo, and its tributaries also are largely free of ice. The rivers along the Atlantic coast as far as southern New England are open throughout their lower courses. The rivers of northern New England are still ice bound, and there has been some increase in the more northern districts; but unfavorable weather has interfered with both the ice harvest and the usual winter lumbering operations.

In the Lake region there has been a slight but general increase in the amount of ice in the more protected harbors. In the lower Lakes the thickness ranges from 10 to 14 inches, while in Lake Superior the ice in most of the harbors ranges from 10 inches to 2 feet in thickness.

The following special reports have been received:

Gardiner, Me., January 31.—Unfavorable weather for all winter operations continues in Maine.

Hartford, Conn., February 1.—The snow in the Connecticut and Housatonic valleys averages 6 inches in depth, the greatest depth being in western Massachusetts. The Connecticut River is free of ice to Turners Falls, Mass., but unchanged above.

Albany, N. Y., February 1.—In the Hudson and Mohawk valleys the snow averages 8 inches in depth. The Mohawk River is mostly open; the Hudson is open from Stillwater south to Castleton, N. Y., but elsewhere the ice averages 11 inches thick.

Binghamton, N. Y., February 1.—The depth of snow in the upper Susquehanna watersheds averages 11 inches, ranging from 2 inches at Alford, Pa., to 22 inches at Richfield Springs, N. Y.

Pittsburg, Pa., January 31.—There have been but slight changes in the depths of snow over the upper Ohio watersheds, and the rivers are generally free from ice.

Hannibal, Mo., January 31.—The channel of the Mississippi River here remains open below the bridge.

F. H. BIGELOW, Professor of Meteorology.

Stations.			Stations.			Stations.			Stations.		
	Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.		Snow.	Ice in rivers, harbors, etc.
Colorado.											
Durango	T.		Lansing	8		Blismark					
Leadville	19		Mackinaw City	30		Devils Lake		4		26.0	
Connecticut.											
West Cornwall	12		Mancelona	39		Williston		1		26.0	
West Simsbury	3		Manistee	15		Ohio.					
Dist. of Columbia.			Maple Ridge	18		Bangorville		4			
Washington	1	0.0	Marquette	23	†	Cleveland		6		14.5	
Idaho.											
Pocatello	T.	0.0	Newberry	14	14.0	Columbus		1			
Illinois.											
Chicago	5		Port Huron	5		Dayton		1			
La Salle	2	14.5	Saginaw	6		Garrettsville		1			
Monmouth	1		Sault Ste. Marie	15	13.5	Philo		7			
Peoria	1	9.0	South Haven	32		Sandusky		7		12.0	
Springfield	1		Minnesota.			Tiffin		3			
White Hall	3		Angus	6		Toledo		3		10.5	
Indiana.											
Bloomington	2		Baudette	10		Wauseon		3			
Indianapolis	1		Beaulieu	8		Waverly		1			
Knox	1		Collegeville	10		Oregon.					
Marion	1		Duluth	6	26.0	Roseburg		2			
Paoli	2		Fergus Falls	10		Pennsylvania.					
Princeton	2		Fort Ripley	8		Salt Mauch Chunk		4			
Winona Lake	4		Grand Meadow	15		Ephrata		3			
Iowa.											
Atlantic	3		Hinckley	17		Erie		7		12.0	
Carroll	2		Mankato	15		Everett		8			
Charles City	12		Milan	8		Greenville		10			
Davenport	5	19.5	Minneapolis	14		Harrisburg		4		†	
Des Moines	1	10.0	Moorehead	14	25.0	Indiana		10			
Dubuque	12	12.5	Reeds	15		Millford		7			
Estherville	9		St. Paul	14	18.0	Parkers Landing		25			
Forest City	15		Windom	18		Pittsburg		4		0.0	
Iowa City	2		Missouri.			Seranton		5			
Keokuk	T.	15.0	Brunswick	2		Sellis Grove		10			
St. Louis	T.	18.5	Columbia	2		Somerset		12			
Waterloo	12		Hannibal	1	11.0	Towanda		4			
Kansas.											
Concordia	T.		Kansas City	1	*	Warren		13			
Kentucky.			Maryville	1		Williamsport		6			
Louisville	T.	0.0	St. Louis	T.	*	South Dakota.					
Maine.											
Bangor	T.	13.0	Nebraska.			Huron		10		23.0	
Buckfield	4		Brokenbow	1		Pierre		2		25.0	
Cornish	3		Columbus	2		Yankton		1		14.0	
Eastport	T.	10.0	Minden	2		Utah.					
Gardiner	T.	9.0	Norfolk	1		Salt Lake City		3			
Greenville	10	23.0	Omaha	1	10.5	Vermont.					
Leicester	1	13.0	St. Paul	2		Burlington		6		0.0	
Millinocket	10		Superior	2		Northfield		12			
Orono	1		Nevada.			St. Johnsbury		6			
Presque Isle	2		Winnemucca	2		Virginia.					
Maryland.											
Baltimore	1	0.0	New Hampshire.			Lynchburg		1		0.0	
Darlington	4		Bethlehem	8		Mount Weather		8			
Frederick	4		Concord	2	13.0	Richmond		1		0.0	
Massachusetts.											
Adams	6		Hanover	10		Woodstock		3			
Amherst	1		Keene	4		Wytheville		2			
Fitchburg	2		New Jersey.			Washington.					
Michigan.											
Alpena	13	0.0	Belvidere	6		Walla Walla		3			
Ann Arbor	5		Charlotteburg	2		West Virginia.					
Battle Creek	15		Flemington	2		Bayard		8			
Big Rapids	5		New York.			Elkins		6		0.0	
Calumet	28		Albany	9	†	Romey		6			
Chatham	27		Beaver River	18		Rowlesburg		5			
Detroit	5	10.0	Binghamton	5		Wisconsin.					
Escanaba	14	16.0	Buffalo	7	10.5	Ashland		7			
Grand Haven	13	*	Canton	9		Eau Claire		12			
Grand Marais	34		Geneva	3		Green Bay		13		12.0	
Grand Rapids	11		Herkimer	15		Koepnick		15			
Houghton	15	10.0	Ithaca	5		La Crosse		11		14.0	
Humboldt	27		Lake Placid	24		Lake Mills		22			
Iron Mountain	6		Liberty	24		Madison		17			
Ironwood	23		Lowville	15		Medford		10			
			Maione	8		Milwaukee		14		0.0	
			Ogdensburg	6		New London		14			
			Olean	10		Portage		13			
			Oswego	14	10.5	Racine		12			
			Plattsburg	5		Sheboygan		18			
			Port Jervis	4		Spooner		5			
			Rochester	2	0.0	Wausau		7			
			Rome	6		Wyoming.					
			Saranac Lake	16		Lander		11			
			Syracuse	7		Yellowstone Park		12			

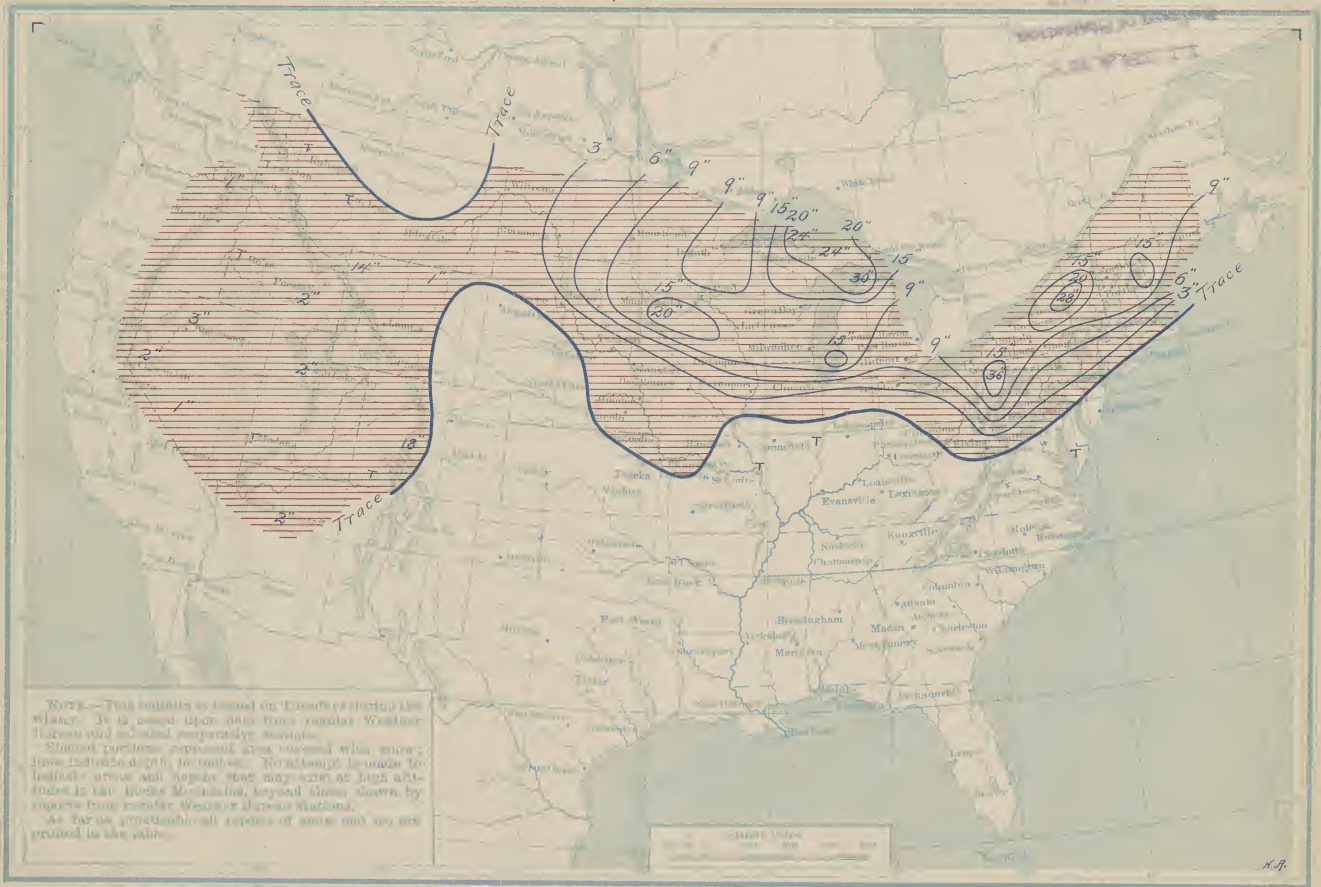
* Floating ice.

† Shore ice.

T. indicates trace.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., February 8, 1910.

DEPTH OF SNOW.

A considerable addition to the snow already on the ground occurred from the lower Lake region northeastward over New England in connection with the storm that moved from the southwest over the middle Mississippi Valley and lower Lake region to the north Atlantic coast from February 1st to 4th. A small increase also occurred during the early part of the week over most of the mountain and Plateau districts to the west. Aside from the above there was a uniform decrease in the depth of the snow covering in all the districts where snow was reported last week. The decrease ranged from 1 inch or less over the Ohio and lower Missouri basins to from 4 to 6 inches in the Lake region and upper Mississippi Valley.

The small amount of snow that covered portions of the lower Columbia basin and western Oregon last week also has generally disappeared. From Pennsylvania northward over New York and New England the increase in depth of snow covering ranged from 2 to 16 inches, and the ground is now deeply covered with snow over those States. Depths from 3 to 20 inches or more still cover the ground from the eastern portion of the Dakotas to the Lake region and southward as far as central Iowa and the northern portions of Illinois, Indiana, and Ohio, the maximum depths, from 15 to 30 inches, occurring over northern Michigan, and somewhat less depths in the southern portions of Minnesota and Wisconsin. No marked increase appears to have occurred in the amount of snow in the mountains of the West, but generally cold weather over those regions has prevented any appreciable melting of that already stored in the higher ranges during the earlier portion of the winter.

ICE IN RIVERS AND HARBORS.

The weather during the past week was generally favorable for a continuation of the ice harvest in New England and the northern portion of the Middle Atlantic States, and a substantial increase in the thickness has occurred in all northern districts from the Lake region northeastward to New England. In the Missouri River and its branches there has been a general decrease, except in their upper portions. In the upper portions of the Mississippi and its tributaries there has been a slight increase, but from Davenport, Iowa, south there is less ice than was reported last week. The Ohio River and its principal tributaries are generally free of ice, except near their headwaters, and similar conditions prevail over most of the main streams of the Middle Atlantic States. The upper portion of the Hudson and the rivers of New England are covered with ice ranging from 6 inches to more than 2 feet in thickness. In the harbors of the lower Lakes the ice ranges from 12 to 16 inches in thickness, and somewhat heavier ice is reported from the Lake Superior harbors. No great amount of ice appears to have formed in the southern portion of Lake Michigan.

The following special reports have been received:

Gardiner, Me., February 7.—Conditions in the Kennebec Valley are again very favorable for all winter operations.

Hartford, Conn., February 8.—The depth of snow ranges from 14 inches in the upper Connecticut Valley to 2 inches at Holyoke, Mass. Snow conditions in the lower watersheds and the ice conditions are unchanged.

Albany, N. Y., February 8.—In the Hudson Valley the snow averages 11 inches in depth; in the Mohawk it averages 13 inches. In the Hudson River the ice averages 12 inches thick; in the Mohawk it averages 6 inches.

Binghamton, N. Y., February 8.—The depth of snow in the upper Susquehanna watersheds averages 12 inches, ranging from 27 inches at Richfield Springs, N. Y., to 4 inches here.

Pittsburg, Pa., February 7.—Large quantities of snow continue on the ground over the watersheds of the Allegheny and Kiskiminetas rivers. The snow has settled somewhat and now forms a very compact covering. There has been a considerable decrease over the watersheds of the Youghiogheny, Monongahela, and Beaver rivers. The rivers are frozen at Confluence, Pa., and Rowlesburg, W. Va., and light ice is running in the Allegheny River.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 7, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	North Dakota—Con.	Inches	Inches
Flagstaff.....	2		Marquette.....	20	†	Devils Lake.....	4	
Colorado.	T.		Menominee.....	18		Williston.....	1	26.0
Durango.....	T.		Onaway.....	18		Ohio.		
Grand Junction.....	T.		Saginaw.....	7		Bangorville.....	1	
Leadville.....	18		Sault Ste. Marie.....	14	14.0	Cleveland.....	T.	14.5
Leadville.....	18		South Haven.....	24		Garrettsville.....	5	
West Cornwall.....	12		Minnesota.			Philo.....	T.	
West Simsbury.....	2		Angus.....	6		Sandusky.....	T.	17.0
Dist. of Columbia.			Baudette.....	11		Tiffin.....	T.	
Washington.		†	Beaulieu.....	7		Toledo.....	T.	12.0
Idaho.			Collegeville.....	9		Wauseon.....	1	
Boise.....	T.		Duluth.....	5	26.0	Wooster.....	3	
Pocatello.....	2	0.0	Fergus Falls.....	9		Youngstown.....	1	
Wallace.....	4		Fort Ripley.....	9		Pennsylvania.		
Illinois.			Grand Meadow.....	16		Altoona.....	6	
Chicago.....	4		Mankato.....	12		East Mauch Chunk.....	2	
Dwight.....	T.		Milan.....	4		Erie.....	7	14.0
La Salle.....	T.	15.0	Minneapolis.....	13		Gordon.....	5	
Monmouth.....	T.		Moorhead.....	12	26.0	Greensboro.....	T.	
Paris.....	T.		Mount Iron.....	9		Greenville.....	9	
Peoria.....	T.	11.0	Redwood Falls.....	20		Harrisburg.....	1	†
Indiana.			Reeds.....	13		Indiana.....	14	
Knox.....	1		St. Paul.....	10	18.0	Millford.....	6	
Winona Lake.....	1		State Sanatorium.....	12		Parkers Landing.....	15	
Iowa.			Windom.....	15		Philadelphia.....	T.	0.0
Atlantic.	1		Missouri.			Pittsburg.....	T.	0.0
Charles City.....	9		Hannibal.....			Ridgway.....	36	
Davenport.....	3	19.0	Kansas City.....	T.	0.0	Seranton.....	2	
Des Moines.....	T.	11.0	La Monte.....	T.		Somerset.....	8	
Dubuque.....	9	13.0	Maryville.....	T.		Towanda.....	4	
Iowa City.....	2		St. Louis.....	T.	0.0	Warren.....	10	
Keokuk.....		14.0	Montana.			Rhode Island.		
St. Paul.....	T.	18.0	Helena.....	T.		Block Island.....		4.0
Waterloo.....	10		Kalispell.....	T.		Narragansett.....	T.	
Maine.			Miles City.....	T.		Providence.....	T.	†
Bangor.....	4	15.0	Nebraska.			South Dakota.		
Cornish.....	15		Lincoln.....	T.		Huron.....	9	16.0
Danforth.....	2		Omaha.....	T.	14.0	Pierre.....	2	25.0
Eastport.....	6	8.5	St. Paul.....	T.		Yankton.....	T.	13.0
Gardiner.....	10	11.0	Superior.....	T.		Utah.		
Greenville.....	12	26.0	Tekamah.....	1		Modena.....	T.	
Lewiston.....	9	17.0	York.....	T.		Salt Lake City.....	2	
Millinocket.....	14		Nevada.			Vermont.		
Orono.....	5		Reno.....	2	0.0	Brattleboro.....	9	25.0
Portland.....	16	0.0	Tonopah.....	1		Burlington.....	10	0.0
Maryland.			Winnemucca.....	3		St. Johnsbury.....	13	
Baltimore.....		†	New Hampshire.			Virginia.		
Frederick.....	1		Bethlehem.....	14		Mount Weather.....	T.	
Princess Anne.....	T.		Concord.....	10	15.0	Woodstock.....	1	
Massachusetts.			New Jersey.			Washington.		
Amherst.....	2		Charlotteburg.....	1		Walla Walla.....	1	
Boston.....	T.		Flemington.....	1		West Virginia.		
Fitchburg.....	7		New York.			Elkins.....	3	0.0
Mansfield.....	1		Addison.....	6		Fairmont.....	T.	
Nantucket.....		†	Albany.....	8	6.0	Glenville.....	1	
Michigan.			Beaver River.....	28		Parkersburg.....	T.	*
Alpena.....	10	0.0	Binghamton.....	4		Romney.....	T.	
Ann Arbor.....	4		Buffalo.....	9	16.5	Rowlesburg.....	2	
Battle Creek.....	7		Canton.....	12		Wisconsin.		
Big Rapids.....	5		De Ruyter.....	20		Ashland.....	6	
Calumet.....	24		Herkimer.....	18		Eau Claire.....	11	
Chatham.....	24		Ithaca.....	4		Green Bay.....	12	13.0
Detroit.....	4	12.0	Lowville.....	23		Koopnick.....	16	
Escanaba.....	10	21.0	Malone.....	10		La Crosse.....	8	14.0
Grand Haven.....	9		Ogdensburg.....	10		Madison.....	16	
Grand Rapids.....	10		Olean.....	10		Medford.....	8	
Hillsdale.....	3		Oswego.....	16	12.5	Milwaukee.....	10	0.0
Houghton.....	20	11.0	Port Jervis.....	4		Mount Horeb.....	12	
Iron Mountain.....	3		Rochester.....	6	6.0	Portage.....	12	
Iron River.....	12		Rome.....	15		Racine.....	8	
Lansing.....	8		Syracuse.....	9		Sheboygan.....	12	
Mackinaw City.....	30		Watertown.....	18		Wyoming.		
Mancelona.....	33		North Dakota.			Sheridan.....	1	
Manistee.....	10		Bismarck.....	3	24.0	Yellowstone Park.....	14	

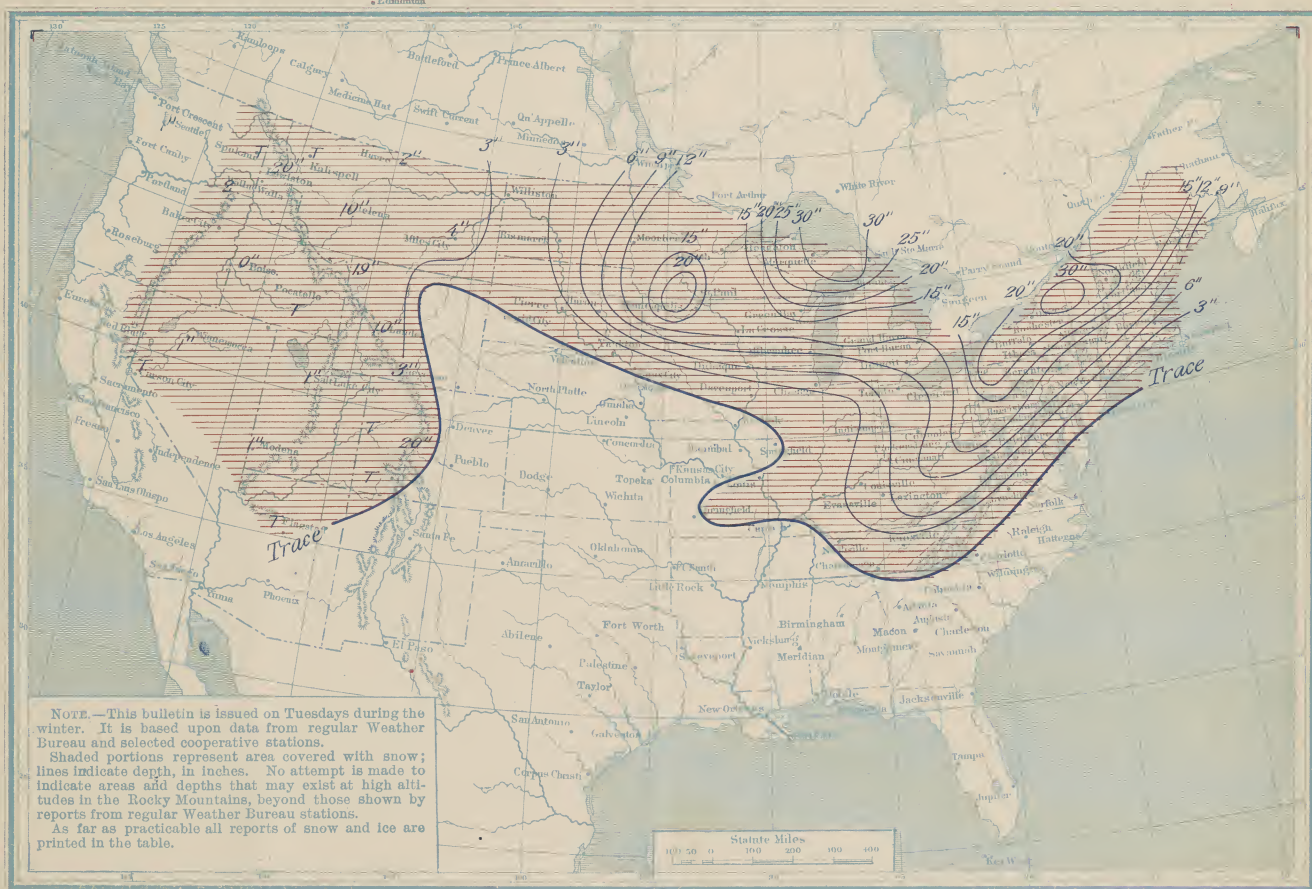
* Floating ice.

† Shore ice.

T. Indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., February 15, 1910.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 14, 1910.

DEPTH OF SNOW.

A storm of considerable extent moved from the middle Gulf States northeastward near the Atlantic coast during the 11th and 12th, causing general and heavy rains over the lower Ohio Valley, east Gulf and South Atlantic coast States and heavy snows over the upper Ohio watershed, lower Lake region, Middle Atlantic coast States and New England. The snowfall during this storm was especially heavy in the mountain regions from West Virginia northeastward over the western portions of Maryland, Pennsylvania, and New York.

Some snow occurred also over portions of the Lake region, middle Atlantic States, and New England on the 10th, and considerable snow occurred in the northern Rocky Mountain region during the 14th in connection with the eastward progress of a storm area of considerable extent, central this morning in Iowa, with indications of considerable snow over the more northern districts in its further eastward movement.

Deep snow covers the ground in the upper portion of the Ohio watershed and generally throughout the interior of the middle Atlantic States, New England, the Lake region, and the upper Mississippi Valley. As the greater part of these regions has been snow-covered during the entire winter, the amount of water stored in the compacted snow has become unusually great, especially over the headwaters of the Ohio River and its tributaries, and in the upper Mississippi Valley.

A small amount of snow disappeared from the ground in the middle Mississippi and lower Missouri valleys and in portions of the middle mountain and Plateau sections of the West. Some increases in the snow depth occurred in the northern Rocky Mountain region, but as a rule there appears to be generally less snow than usual over most of the western mountain districts.

ICE IN RIVERS AND HARBORS.

The continuation of moderately cold weather during the last week resulted in a general increase in the thickness of ice over all the lakes and streams of the more northern districts, and considerable ice also formed on the rivers of the Middle Atlantic States which were clear last week.

The past week has been generally favorable for a continuation of the ice harvest, which is probably nearing completion in all districts, and other winter operations have generally been pursued under favorable conditions.

Heavy ice covers the upper courses of the Missouri and Mississippi rivers and their tributaries, the increase in thickness during the week ranging from 1 to 5 inches. Some ice has formed over the head waters of the Ohio, but the main stream still remains open from Pittsburgh to its mouth, except that floating ice is reported from several points.

Considerable ice formed in the rivers of the Atlantic coast from Maryland northward, and there was a general increase of from 1 to 5 inches in the thickness of the ice in the harbors of the Great Lakes.

The following special reports have been received:

Gardiner, Me., February 14.—In the Kennebec Valley south of Waterville the depth of snow is very even and sufficient for all winter operations. The ice harvest will be over this week.

Hartford, Conn., February 15.—There has been a decided increase in the depth of snow, which now ranges from 5 inches on the coast to 20 inches in the upper Connecticut Valley. The thickness of the ice has slightly increased.

Albany, N. Y., February 15.—In the Hudson Valley the snow averages 17 inches in depth; in the Mohawk it averages 20 inches, the greatest depth being 31 inches at Glens Falls, N. Y. In the Hudson River the ice averages 11 inches thick; in the Mohawk it averages 8 inches.

Binghamton, N. Y., February 15.—The depth of snow in the upper Susquehanna watershed averages 19 inches, ranging from 39 inches at Richfield Springs, N. Y., to 8 inches at Willow Point, N. Y.

Pittsburg, Pa., February 14.—The depths of snow have increased by from 4 to 18 inches, the total depths now averaging about 10 inches over the Monongahela watershed and about 24 over the Allegheny, where the accumulated snow is probably the greatest for many years. An ice gorge has formed on the Allegheny River about 14 miles above Pittsburg, and another at the Springdale pool, below Freeport.

F. H. BIGELOW, Professor of Meteorology.

Stations.		Snow.	Ice in rivers, harbors, etc.	Stations.		Snow.	Ice in rivers, harbors, etc.	Stations.		Snow.	Ice in rivers, harbors, etc.
<i>Colorado.</i>								<i>Pennsylvania—Con.</i>			
Leadville.....	20			Minnesota—Cont'd.				Inches	Inches		
<i>Connecticut.</i>				Fergus Falls.....	8			Ephrata.....	7		
Hartford.....	8	†		Fort Ripley.....	10			Erie.....	13	15.5	
New Haven.....	4			Hinckley.....	18			Everett.....	10		
West Cornwall.....	18			Mankato.....	12			Gettysburg.....	5		
West Shusbury.....	12			Minneapolis.....	13	27.0		Gordon.....	9		
<i>Idaho.</i>				Moorhead.....	30			Greensboro.....	6		
Lewiston.....	T.	0.0		Redwood Falls.....	9			Greenville.....	18		
Wallace.....	20			Reeds.....	10	18.0		Harrisburg.....	8	6.0	
<i>Illinois.</i>				St. Paul.....				Indiana.....	14		
Chicago.....	2			<i>Missouri.</i>				Milford.....	10		
La Salle.....	T.	15.0		Hannibal.....	†			Parkers Landing.....	27		
Peoria.....		11.0		St. Louis.....	T.	0.0		Philadelphia.....	1	2.0	
Winnebago.....	12			<i>Montana.</i>				Pittsburg.....	9	0.0	
<i>Indiana.</i>				Havre.....	2			Ridgway.....	48		
Bloomington.....	3			Helena.....	10			Scranton.....	5		
Indianapolis.....	2			Kalispell.....	7			Selins Grove.....	14		
Winona Lake.....	2			Miles City.....	4			Somerset.....	34		
<i>Iowa.</i>				<i>Nebraska.</i>				Towanda.....	9		
Charles City.....	9			Omaha.....	12.0			Warren.....	18		
Davenport.....	T.	18.5		<i>New Hampshire.</i>				<i>Rhode Island.</i>			
Dubuque.....	8	17.0		Bethlehem.....	16			Narragansett.....	1		
Iowa City.....	2			Concord.....	15	12.0		Providence.....	5	0.0	
Keokuk.....	14.5			<i>New Jersey.</i>				<i>South Dakota.</i>			
Sioux City.....	18.0			Bridgeport.....	2			Huron.....	8	21.0	
<i>Kentucky.</i>				Cape May.....	0.5			Pierre.....	T.	26.0	
Eubank.....	9			Charlotteburg.....	6			Yankton.....	T.	13.0	
Greensburg.....	4			Flemington.....	6			<i>Tennessee.</i>			
Hopkinsville.....	2			Highstown.....	3			Knoxville.....	2		
Lexington.....	2			<i>New York.</i>				<i>Utah.</i>			
Louisville.....	2	0.0		Addison.....	16			Modena.....	1		
St. John.....	3			Albany.....	9	7.0		Salt Lake City.....	1		
<i>Maine.</i>				Beaver River.....	35			<i>Vermont.</i>			
Bangor.....	6	15.0		Binghamton.....	8			Brattleboro.....	12	25.0	
Cornish.....	19			Buffalo.....	18	16.0		Burlington.....	17	9.0	
Danforth.....	12			Canton.....	20			Northfield.....	24		
Eastport.....	4	10.5		Chatham.....	9			St. Johnsbury.....	16		
Gardiner.....	15	13.0		Cuthogue.....	1			<i>Virginia.</i>			
Greenville.....	18	23.0		De Ruyter.....	24			Lynchburg.....	T.	†	
Millinocket.....	20			Geneva.....	18			Mount Weather.....	1		
Orono.....	9			Herkimer.....	36			Stephens City.....	4		
Portland.....	21	0.0		Ithaca.....	9			Woodstock.....	4		
<i>Maryland.</i>				Le Roy.....	16			Wytheville.....	6		
Baltimore.....	1	3.5		Lowville.....	40			<i>Washington.</i>			
Frederick.....	2			New York.....	3			Tacoma.....	1		
<i>Massachusetts.</i>				Ogdensburg.....	14			Walla Walla.....	2		
Adams.....	16			Olean.....	18			<i>West Virginia.</i>			
Amherst.....	8			Oswego.....	26	17.5		Bayard.....	16		
Boston.....	6			Port Jervis.....	8			Charlesston.....	5		
Fitchburg.....	15			Rochester.....	18	8.0		Elkins.....	5	0.0	
Mansfield.....	6			Rome.....	20			Fairmont.....	8		
<i>Michigan.</i>				Setauket.....	1			Glenville.....	12		
Alpena.....	10	2.0		Syracuse.....	14			Huntington.....	10		
Ann Arbor.....	6			Wedgwood.....	21			Parkersburg.....	8	*	
Battle Creek.....	9			<i>North Carolina.</i>				Princeton.....	6		
Big Rapids.....	6			Asheville.....	T.			Romney.....	10		
Calumet.....	25			Charlotte.....	6			Rowlesburg.....	6		
Chatham.....	25			<i>North Dakota.</i>				Williamsport.....	6		
Detroit.....	7	11.0		Bismarck.....	4	24.0		<i>Wisconsin.</i>			
Escanaba.....	10	22.0		Devils Lake.....	4			Eau Claire.....	10		
Grand Haven.....	8	*		Williston.....	28.0			Green Bay.....	12	13.0	
Grand Marais.....	36			<i>Ohio.</i>				Koenepick.....	20		
Grand Rapids.....	9			Bangorville.....	8			La Crosse.....	8	16.5	
Houghton.....	20	12.0		Cadiz.....	10			Lake Mills.....	14		
Ironwood.....	23			Cincinnati.....	5	*		Madison.....	15		
Lansing.....	10			Cleveland.....	9	16.5		Medford.....	7		
Manelona.....	28			Columbus.....	8			Milwaukee.....	8	0.0	
Marquette.....	21	3.0		Dayton.....	8			Mount Horeb.....	11		
Menominee.....	20			Greenville.....	6			New London.....	10		
Port Huron.....	8	16.0		Sandusky.....	6	18.0		Portage.....	10		
Sault Ste. Marie.....	18	14.5		Tiffin.....	7			Racine.....	8		
<i>Minnesota.</i>				Toledo.....	3	14.0		Spooner.....	3		
Angus.....	6			Wausau.....	4			Wausau.....	5		
Baudette.....	10			Youngstown.....	7			<i>Wyoming.</i>			
Beaulieu.....	7			<i>Pennsylvania.</i>				Lander.....	10		
Duluth.....	4	27.5		Altoona.....	14			Yellowstone Park.....	19		

* Floating ice.

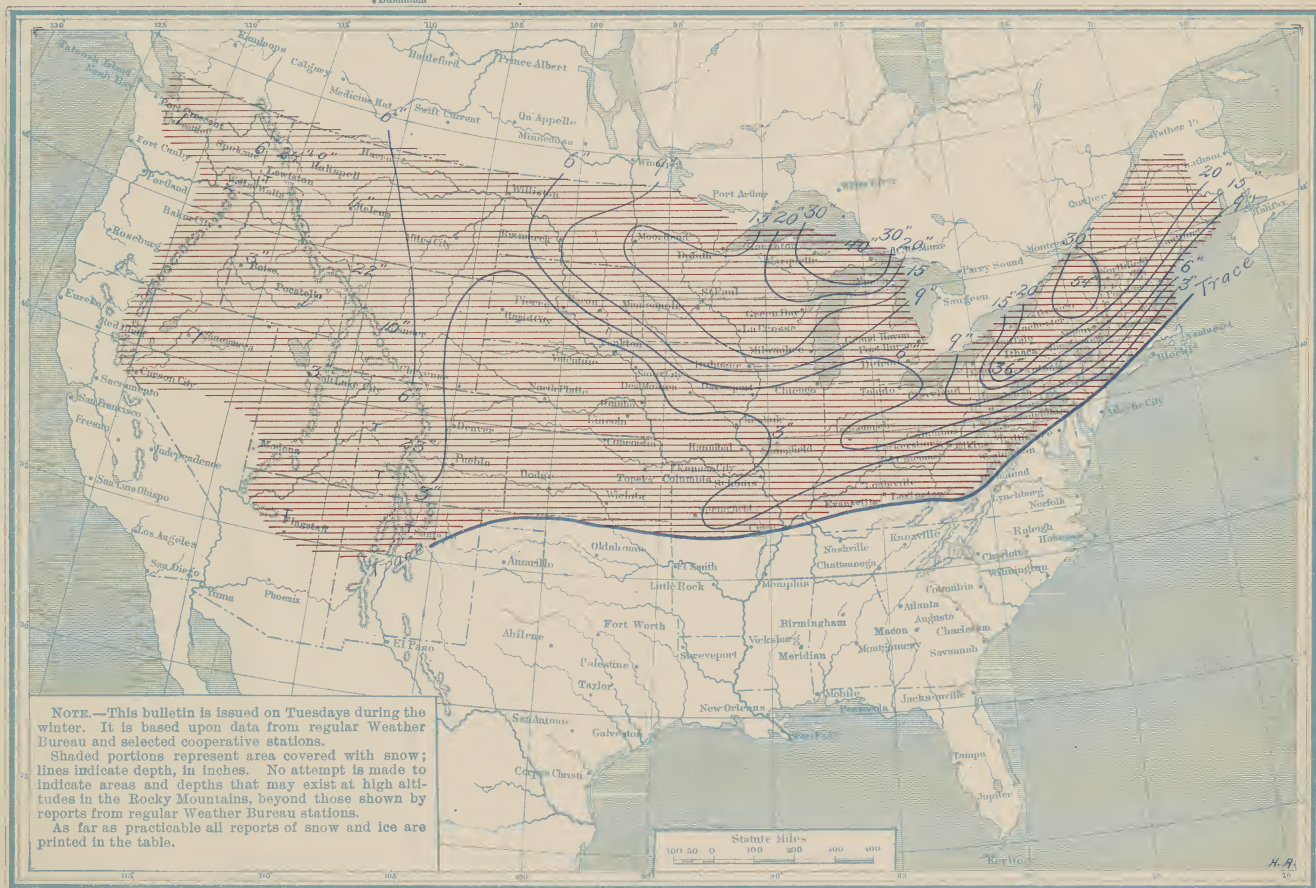
† Shore ice.

T. indicates trace.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

Willis L. Moore, Chief U. S. Weather Bureau.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations. As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., February 23, 1910.
DEPTH OF SNOW.

A storm of wide extent, but without any large amount of snow, except in the northern Rocky Mountain and upper Lake regions, moved from the north Pacific coast to the Lake region and New England during the early part of the week, and a second storm, accompanied by heavy rains and snows, developed over the southwest about the middle of the week and during the 17th and 18th moved from the middle Gulf coast northeastward to the New England coast, giving some unusually heavy snows in the Ohio Valley, Lake region, and Appalachian Mountain districts.

Considerable melting on account of rain and warm weather occurred during the latter part of the week in the Appalachian Mountain, lower Lake region, and Middle Atlantic States.

There is still a heavy snow covering over all districts from the Dakotas eastward to New England and extending southward over the greater part of Missouri and to the Ohio River and the interior of the Middle Atlantic States.

The maximum depths, from 15 to 50 inches or more, occurred from eastern Ohio northeastward over the western portions of Pennsylvania and New York and northern New England. Over the upper Mississippi Valley and Lake region the depths range from 10 to 40 inches, the maximum depths occurring in northern Michigan.

As stated last week the water content of the snow lying on the ground in the headwaters of the Ohio and upper Mississippi rivers, and generally over Pennsylvania, New York, and portions of New England, is unusually great; in portions of the Ohio watershed the amount being estimated at from 2 to 5 inches, and the ground probably well saturated in addition.

There appears to have been a considerable addition to the amount of snow in the mountain regions of the West, the fall during the week ranging from 2 to 6 inches at the lower elevations, with probably much larger amounts in the high ranges.

ICE IN RIVERS AND HARBORS.

Cold weather continued during the week in the Missouri and Mississippi valleys, the Lake region, and New England, and a general increase in the thickness of ice occurred in all those districts, except at a few points in the lower Lake region.

Heavy ice covers the upper portions of the Missouri and Mississippi rivers and their tributaries, and in their lower courses, as well as in the Ohio, considerable floating ice is reported. Some ice disappeared from the lower courses of the rivers from Virginia to New York, but the upper portions generally remain ice bound. In the upper portions of the Hudson and over the rivers of New England, there has been a general increase in thickness of from 2 to 4 inches. In the Lake region there has been a general, and at a few points on Lake Superior a decided increase in the thickness of the ice, the harbors of Lakes Erie and Ontario being covered with ice from 10 to nearly 20 inches in thickness, while somewhat greater depths are reported from Lake Superior.

The following special reports have been received:

Brattleboro, Vt., February 21.—The ice is brittle toward the water.
Hartford, Conn., February 22.—The depth of snow has increased slightly in the upper Connecticut Valley, where it ranges from 18 to 20 inches, but has decreased in Massachusetts and Connecticut. The thickness of ice is practically unchanged.
Albany, N. Y., February 22.—In the Mohawk Valley the snow averages 22 inches in depth; in the Hudson it averages 17 inches, the greatest depth reported being 35 inches at Glens Falls, N. Y. In the Hudson River the ice averages 13 inches thick; in the Mohawk it averages 10 inches.
Binghamton, N. Y., February 22.—The depth of snow in the upper Susquehanna watersheds averages 17 inches.
Harrisburg, Pa., February 21.—The lower Susquehanna River and its tributaries are generally ice-bound above here, except the Juniata, which is only partly frozen. The ice at Renovo moved on the night of the 17th and gorged below the town, and it shoved the same night in the river here, where the thickness now ranges from a few inches to several feet. The snow near the rivers averages 5 inches deep, ranging from 1 inch here to 10 inches at Towanda, Pa., but it is much deeper in the mountains.
Pittsburg, Pa., February 21.—During the past week the depth of snow has increased slightly over the upper Allegheny watershed, the amount now on the ground averaging from 2 to 3 feet. Over the Kiskiminetus, Youghiogheny, and Monongahela watersheds there has been a decided decrease in the depth on the ground, the amount now ranging from a trace to 12 inches. The water equivalent of the snow on the ground over the upper Allegheny watershed averages from 3 to 5 inches.

F. H. BIGELOW, Professor of Meteorology.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 21, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Colorado.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New York—Cont'd.	Inches	Inches
Grand Junction...	9		Grand Haven...	9	†	Syracuse...	12	
Leadville...	23		Grand Marais...	40		Watertown...	14	
Connecticut.			Grand Rapids...	7		Wedgwood...	25	
Hartford...	17	†	Hillsdale...	3		North Dakota.		
West Cornwall...	T.		Houghton...	30	14.5	Bismarck...	12	27.0
West Simsbury...	5		Iron Mountain...	14		Devils Lake...	5	
Idaho.			Lansing...	6		Williston...	3	30.0
Boise...	3		Mackinaw City...	34		Ohio.		
Postello...	1	0.0	Mancelona...	36		Bangorville...	8	
Wallace...	24		Manistee...	12		Cadiz...	4	
Illinois.			Maple Ridge...	25		Cincinnati...	2	*
Cairo...	T.	*	Marquette...	23	15.0	Cleveland...	1	17.0
Chicago...	1		Newberry...	18		Columbus...	8	
Dwight...	1		Port Huron...	7	16.0	Dayton...	8	
Hillsboro...	6		Sault Ste. Marie...	24	15.0	Garrettsville...	14	
La Salle...	3	15.0	South Haven...	4		Greenville...	6	
Monmouth...	4		Woodlawn...	30		Philo...	4	
New Burnside...	2		Minnesota.			Sandusky...	2	19.0
Olney...	6		Angus...	6		Tiffin...	6	
Paris...	5		Bandette...	10		Toledo...	T.	11.5
Peoria...	1	11.0	Collegeville...	10		Youngstown...	5	
Springfield...	1		Duluth...	13	29.0	Pennsylvania.		
Tilden...	6		Fergus Falls...	13		Altoona...	9	
Winnebago...	12		Fort Ripley...	24		East Mauch Chunk...	4	
Indiana.			Grand Meadow...	15		Erle...	7	
Bloomington...	6		Mankato...	10		Gordon...	6	
Evansville...	1	*	Milan...	8		Greenville...	14	
Indianapolis...	4		Minneapolis...	16		Harrisburg...	1	7.0
Jeffersonville...	2		Moorehead...	17	30.0	Indiana...	5	
Marion...	2		Mount Iron...	8		Millford...	11	
Paoli...	4		St. Paul...	12	19.0	Parkersburg...	24	
Princeton...	3		Windom...	13		Pittsburg...	1	0.0
Seymour...	2		Missouri.			Ridgway...	36	
Winona Lake...	1		Hannibal...	T.	*†	Scranton...	2	
Iowa.			Ironton...	6		Selins Grove...	11	
Carroll...	1		Kansas City...	T.	*	Towanda...	10	
Charles City...	12		St. Louis...	6	*	Warren...	19	
Creston...	8		Springfield...	3		Wellsboro...	7	
Davenport...	3	24.0	Montana.			Williamsport...	4	
Des Moines...	1	12.0	Havre...	4		South Dakota.		
Dubuque...	10	22.0	Kalispell...	9		Huron...	9	24.0
Humboldt...	11		Nebraska.			Pierre...	3	28.0
Keokuk...	1	14.5	Columbus...	1		Rapid City...	1	
Sioux City...	T.	17.0	Lincoln...	2		Yankton...	T.	14.0
Waterloo...	12		Omaha...	2	13.5	Utah.		
Kansas.			Valentine...	2		Salt Lake City...	3	
Ellinwood...	2		York...	3		Vermont.		
Iola...	T.	0.5	Nevada.			Brattleboro...	11	24.0
Wichita...	1		Winnemucca...	1		Burlington...	15	11.0
Kentucky.			New Hampshire.			Northfield...	20	
Louisville...	2	0.0	Bethlehem...	18		St. Johnsbury...	17	
Owensboro...	2		Concord...	13	14.0	Washington.		
St. John...	1		Keene...	16		Spokane...	6	
Maine.			New Jersey.			Tacoma...	1	
Bangor...	9	16.0	Belvidere...	6		Walla Walla...	2	
Buckfield...	25		Charlotteburg...	2		West Virginia.		
Danforth...	13		New York.			Glennville...	5	
Eastport...	2	11.0	Albany...	9	9.5	Parkersburg...	1	*
Gardiner...	20	14.0	Binghamton...	3		Wisconsin.		
Greenville...	24	27.0	Buffalo...	10	18.0	Eau Claire...	13	15.0
Lewiston...	12	16.0	Canton...	14		Green Bay...	15	35.0
Millinocket...	27		De Ruyter...	20		Koepenick...	22	
Orono...	13		Geneva...	8		La Crosse...	9	18.5
Portland...	17	0.0	Herkimer...	36		Lake Mills...	17	
Presque Isle...	8		Ithaca...	6		Madison...	19	
Massachusetts.			Lake Placid...	54		Medford...	7	
Adams...	12		Le Roy...	15		Milwaukee...	7	0.0
Fitchburg...	8		Lowville...	30		New London...	13	
Michigan.			Ogdensburg...	18		Portage...	13	
Alpena...	14	4.0	Olean...	19		Racine...	7	
Ann Arbor...	3		Oswego...	20	17.0	Viroqua...	9	
Battle Creek...	4		Plattsburg...	40		Wausau...	7	
Big Rapids...	10		Rochester...	14	7.0	Wyoming.		
Chatham...	28		Rome...	10		Lander...	10	
Detroit...	4	10.0	Saranac Lake...	42		Sheridan...	3	
Escanaba...	15	23.0	Saratoga Springs...	48		Yellowstone Park...	22	

* Floating ice.

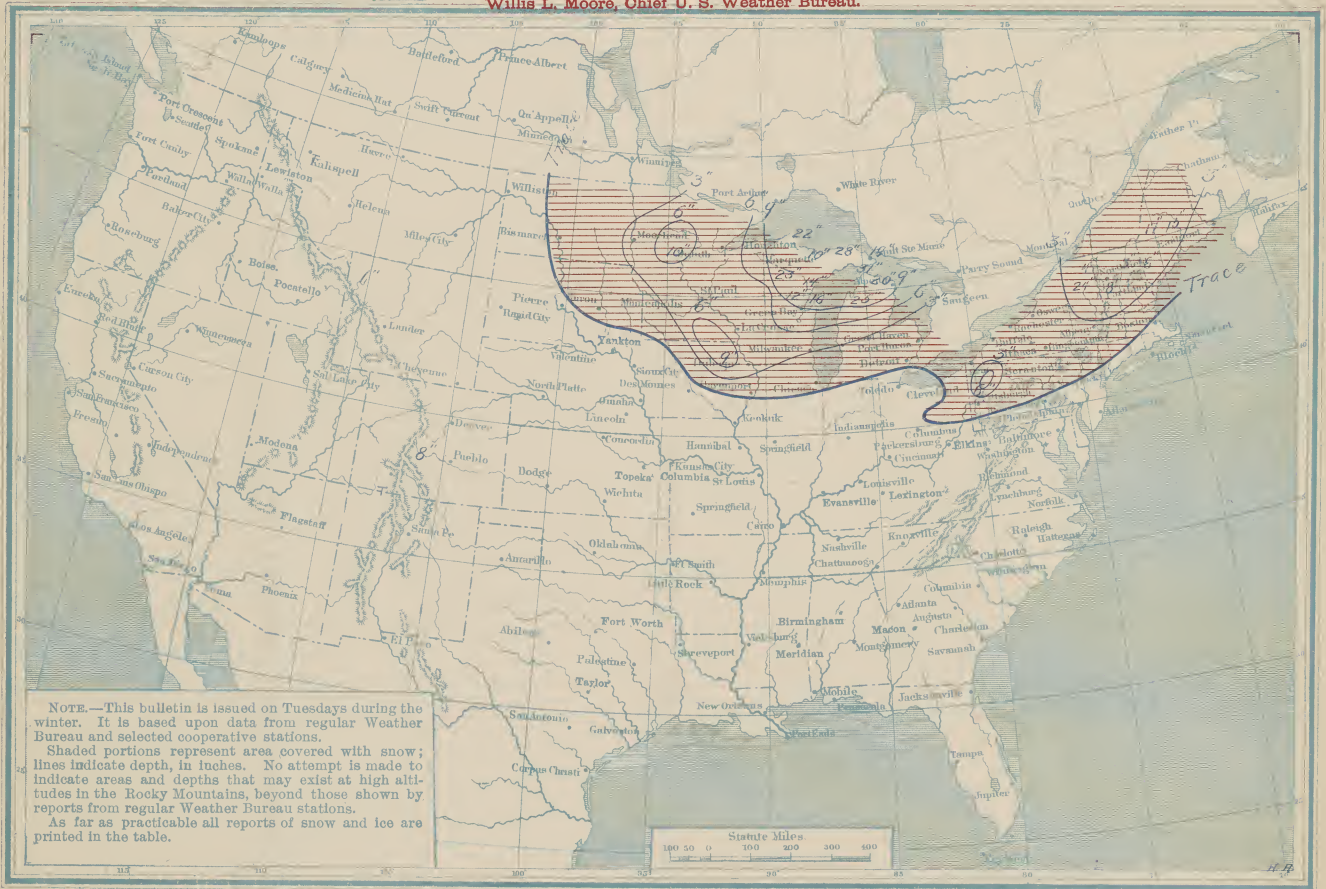
† Shore ice.

T. Indicates trace.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., March 8, 1910.
DEPTH OF SNOW.

Light flurries of snow occurred in the Lake region on the morning of the 7th, aside from which no appreciable snowfall was reported during the week from any portion of the United States.

With the continuation of moderately warm weather a large amount of snow has disappeared from all northern districts during the week, and only small areas east of the Rocky Mountains are now covered to any considerable depths.

In northern New York and the interior of New England the snow in the woods and other protected localities ranges from one to two feet in depth, but in the open country it has largely disappeared. In portions of northwestern Pennsylvania and western New York there is still a covering of several inches, and considerable snow still remains on the ground in northern Michigan and over the greater part of the States of Wisconsin and Minnesota.

In the mountain regions of the West the snow has disappeared from all the lower elevations and there appears to have been a large reduction in the depths at the higher elevations. At Leadville, Colo., above 10,000 feet elevation, the decrease in depth during the week was nearly 2 feet, and in the Yellowstone National Park, Wyo., above 6,000 feet elevation, the decrease was slightly greater.

ICE IN RIVERS AND HARBORS.

As a result of the continued warm weather and the general rise in the rivers the ice is being rapidly broken up and appears to be passing out of the various streams without the formation of gorges or seriously interfering with navigation in the open portions of the rivers.

In the Missouri the ice appears to be breaking up throughout its entire course, due mostly to the rising waters.

The Mississippi is open below Dubuque, but the ice above that point appears to be intact. The ice has practically disappeared from the Ohio River and its tributaries, and likewise from the main streams of the Atlantic coast, except in New England, where the rivers and lakes are still generally ice covered.

In the Great Lakes the westerly winds have driven the ice fields toward the eastern sides or ends of the lakes, and the harbors of the western portions are generally free of ice, except in Lake Superior, where but little change has occurred since last week.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Gardiner, Me., March 7.—The snow has nearly all wasted on the highlands in the Kennebec Valley.

Brattleboro, Vt., March 7.—The ice in the Connecticut River here is breaking up gradually, the thickness ranging from 10 to 20 inches.

Hartford, Conn., March 8.—The snow in the Connecticut Valley has diminished greatly, the depths now ranging from 3 to 6 inches in the upper section, while only traces remain in the lower section. The Connecticut River is still closed above Turners Falls, Mass. Navigation from Hartford to Long Island Sound opened to-day.

Albany, N. Y., March 8.—In the Hudson Valley the depth of snow ranges from a trace at Athens to 11 inches at Glens Falls, N. Y.; in the Mohawk Valley it ranges from a trace at Cohoes to 8 inches at Utica, N. Y. There is only running and shore ice in the Hudson River south of Mechanicville, N. Y., and the Mohawk River is mostly open.

Pittsburg, Pa., March 7.—The snow on the ground has practically disappeared from the watersheds, except over the upper Allegheny watershed, where the depths still range from 1 to 9 inches.

Detroit, Mich., March 8.—High winds have moved the ice fields in Lake Superior over the western and central portions. No change has occurred in the St. Marys River. In Green Bay the ice is softening. The ice fields extend along the extreme southeast and east shore of Lake Michigan to the Straits of Mackinac, where the ice is decreasing. In Lake Huron there are only small fields in the extreme northern portion. The St. Clair River is open halfway down to Lake St. Clair. The ice in Lake St. Clair is softening, and the Detroit River is open. In the western portion of Lake Erie there is open water, but extensive fields cover the remainder of the lake. There are no fields on Lake Ontario, except over the eastern end of the lake.

Dubuque, Iowa, March 7.—The ice in the Mississippi River here is badly honey-combed.

Hannibal, Mo., March 7.—The Mississippi River here is full of heavy floating ice. Omaha, Nebr., March 7.—The ice in the Missouri River here broke on the 4th and the river is now full of running ice. No damage resulted.

Minneapolis, Minn., March 8.—In the woods of this State from 3 to 15 inches of snow remain.

Williston, N. Dak., March 7.—The Missouri River here is rising and the ice is breaking up.

F. H. BIGELOW, Professor of Meteorology.

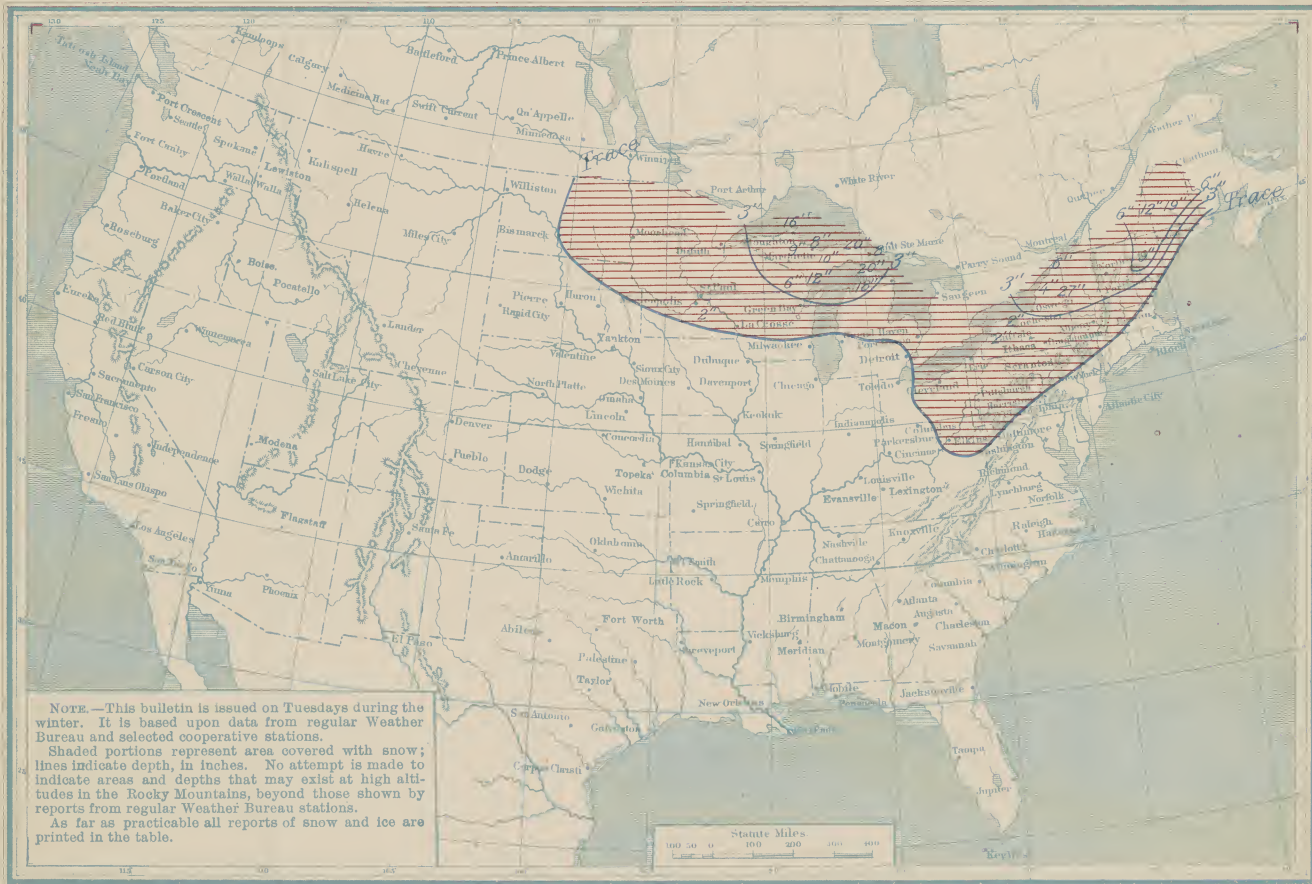
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 7, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Colorado.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New York—Cont'd.	Inches	Inches
Durango.....	T.		Newberry.....	12		Syracuse.....	T.	
Leadville.....	8		Onaway.....	8		Wedgwood.....	T.	
Connecticut.			Port Huron.....	0.0		North Dakota.		
West Cornwall.....	4		Saginaw.....	T.		Bismarck.....	1	24.0
West Simsbury.....	T.		St. Ignace.....	31		Devils Lake.....	T.	
Illinois.			Sault Ste. Marie.....	19	15.0	Williston.....		
Chicago.....	T.		Woodlawn.....	22		Ohio.		
Winnebago.....	4		Minnesota.			Bangorville.....	T.	
Iowa.			Angus.....	T.		Cadiz.....	T.	
Charles City.....	T.		Collegeville.....	3		Cleveland.....		15.0
Des Moines.....	*		Duluth.....	32.5		Garrettsville.....	T.	
Dubuque.....	1	8.0	Hinckley.....	T.		Sandusky.....		*
Waterloo.....	9		Mankato.....	5		Pennsylvania.		
Maine.			Milan.....	T.		Erie.....	T.	7.0
Bangor.....	T.	16.0	Minneapolis.....	T.		Franklin.....	9	
Buckfield.....	6		Moonhead.....	4	30.0	Milford.....	T.	
Danforth.....	T.		Mount Iron.....	T.		Parkers Landing.....	2	
Eastport.....	T.	7.5	New Richland.....	6		Pittsburg.....	T.	0.0
Gardiner.....	6	10.0	Redwood Falls.....	T.		Seranton.....	T.	
Greenville.....	17	29.0	Reeds.....	3		Selins Grove.....	T.	
Lewiston.....	T.	14.0	St. Paul.....	T.	18.0	Warren.....	4	
Millinocket.....	15		State Sanatorium.....	10		South Dakota.		
Orono.....	T.		Missouri.			Huron.....	T.	0.0
Portland.....	2	0.0	Hannibal.....	*		Pierre.....		*
Massachusetts.			Montana.			Yankton.....		
Concord.....	T.		Kalispell.....	T.		Vermont.		
Fitchburg.....	T.		Nebraska.			Brattleboro.....	3	15.0
Michigan.			Omaha.....	*		Burlington.....	1	9.0
Alpena.....	5	0.0	New Hampshire.			Northfield.....	8	
Battle Creek.....	T.		Bethlehem.....	T.		St. Johnsbury.....	3	
Big Rapids.....	3		Concord.....	2	8.0	Wisconsin.		
Calumet.....	22		Keene.....	T.		Ashland.....	6	
Chatham.....	14		New York.			Green Bay.....	5	10.0
Grand Haven.....	T.	0.0	Albany.....	T.	0.0	Koepenick.....	12	
Grand Marais.....	28		Binghamton.....	T.		La Crosse.....	T.	17.0
Grand Rapids.....	T.		Buffalo.....	T.	14.0	Madison.....	3	
Houghton.....	13	13.0	Canton.....	T.		Medford.....	T.	
Iron River.....	3		Geneva.....	T.		Milwaukee.....	2	0.0
Mackinaw City.....	20		Ithaca.....	T.		New London.....	6	
Mancelona.....	25		Olean.....	2		Portage.....	5	
Manistee.....	6		Plattsburg.....	4		Viroqua.....	4	
Maple Ridge.....	14		Port Jervis.....	T.		Wausau.....	3	
Marquette.....	10	0.0	Rochester.....	T.	0.0	Wyoming.		
Menominee.....	16		Saranac Lake.....	24		Yellowstone Park.....	1	

* Floating ice. † Shore ice. ‡ Ice flooded. T. indicates trace.

SNOW AND ICE BULLETIN.

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NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.
Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.
As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., March 15, 1910.
DEPTH OF SNOW.

A considerable amount of snow fell over the Middle Atlantic coast district on the 10th, but it had generally disappeared before the end of the week. A small amount of snow occurred also over the lower lake region near the end of the week and in the presence of moderately cold weather remained unmelted at the close. With the exception of the above, however, there was apparently no appreciable snowfall in any portion of the United States during the week.

Throughout the upper Lake region and New England there was a general reduction of from 3 to 6 inches in the snow depth during the week, and the greater part of the country is now free of snow in measurable amounts, except in the northern portions of Michigan and Wisconsin, in the Adirondack region of New York, and in the woods of interior New England.

In the mountain regions of the west there appears to have been a general reduction in all districts where snow was reported last week, and it has practically disappeared from all moderate elevations.

In the northern portion of the mountain regions there appears to be a good supply of snow still remaining in the higher mountains, and its condition is such as to justify the assumption that there will be a plentiful supply of water therefrom during the coming crop-growing season.

In the central districts there is generally less snow than at the same time last year, but the alternating cold and warm periods have been very favorable for settling and solidifying that which remains on the ground, and the outlook is favorable for a moderate flow of water until late in the season. Over the southern districts there is generally much less snow than usual, and the outlook for the coming season indicates a considerably diminished supply of water from melting snow.

ICE IN RIVERS AND HARBORS.

Comparatively cool weather continued during the week over the more northern districts, and as a result ice conditions did not rapidly change.

There has been a slow but rather general breaking up of the ice in the upper courses of the Missouri and Mississippi rivers and their tributaries, and it is moving out apparently without damage.

The ice has generally disappeared from the Hudson and its tributaries, and is breaking up in the Connecticut and the lower portions of the remaining rivers of New England. In the interior and northern portions of New England, however, there has been but little change during the week, and heavy ice still covers the streams and lakes of that section.

The southern harbors of the lower lakes, as also those of lakes Huron and Michigan, are largely free of ice, although the westerly winds have driven the ice fields toward the eastern portions of the respective lakes.

The conditions on Lake Superior remain practically unchanged since last week, the harbors still remaining ice bound, and the St. Marys river and Straits of Mackinac continue closed.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Gardiner, Me., March 14.—The uplands in the Kennebec Valley are now free from snow. The channel of the Kennebec River is open in several places between Augusta and Richmond, Me.

Brattleboro, Vt., March 14.—The Connecticut River is partly open; elsewhere there is ice from 6 to 12 inches thick. Snow remains back on the hills, but the ground in the valley is bare.

Hartford, Conn., March 15.—The snow in the Connecticut Valley ranges from 5 inches at the Connecticut lakes to 1 inch at White River Junction, Vt., but considerable snow remains in the woods. The ice in the Connecticut River is deteriorating slowly.

Albany, N. Y., March 15.—In the Hudson Valley the depth of snow ranges from a trace at Athens to 11 inches at Corinth, N. Y.; in the Mohawk Valley it ranges from a trace at Cohoes to 4 inches at Utica. The ice is mostly out of both the Hudson and Mohawk rivers.

Buffalo, N. Y., March 14.—The harbor is almost free of floating ice. The ice on the lake is 12 inches thick, but somewhat honeycombed.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 14, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Maine.	Inches	Inches	Minnesota—Cont'd.	Inches	Inches	North Dakota.	Inches	Inches
Bangor.....	13.0	T.	Duluth.....	T.	32.0	Bismarck.....	T.	*
Cornish.....	9	T.	Fort Ripley.....	T.		Ohio.		
Eastport.....	7.0	T.	Mankato.....	1		Bangorville.....	T.	
Gardiner.....	4	7.0	Moorhead.....	T.	28.0	Cleveland.....	T.	0.0
Greenville.....	12	27.5	Mount Iron.....	T.		Garrettsville.....	T.	
Lewiston.....	T.	12.0	New Richmond.....	2		Sandusky.....	T.	*
Millinocket.....	19		St. Paul.....	T.	0.0	Tiffin.....	T.	
Orono.....	1	0.0	New Hampshire.			Pennsylvania.		
Portland.....	T.		Bethlehem.....	2		Altoona.....	T.	
Maryland.			Concord.....	T.	0.0	Erle.....	1	6.0
Oakland.....	T.		Keene.....	T.		Milford.....	T.	
Massachusetts.			New Jersey.			Pittsburg.....	T.	0.0
Adams.....	T.		Charlotteburg.....	T.		Seranton.....	T.	
Amherst.....	T.		New York.			Sellis Grove.....	T.	
Michigan.			Albany.....	T.	0.0	Towanda.....	T.	
Alpena.....	T.	0.0	Beaver River.....	27		South Dakota.		
Big Rapids.....	T.		Binghamton.....	T.		Huron.....		*
Calumet.....	16		Buffalo.....	2	0.0	Vermont.		
Chatham.....	10		Canton.....	3		Brattleboro.....		†
Escanaba.....	3	23.0	De Ruyter.....	T.		Burlington.....	T.	9.0
Grand Marais.....	20		Geneva.....	T.		Northfield.....	4	
Grand Rapids.....	T.		Herkimer.....	T.		West Virginia.		
Houghton.....	7	12.0	Ithaca.....	T.		Elkins.....	1	0.0
Humboldt.....	9		Le Roy.....	T.		Parkersburg.....	T.	0.0
Iron River.....	T.		Lowville.....	3		Wisconsin.		
Mancelona.....	18		Malone.....	1		Ashland.....		3
Manistee.....	4		Ogdensburg.....	6		Green Bay.....		3.0
Maple Ridge.....	12		Oswego.....	3	6.0	Koepnick.....	6	
Marquette.....	8	0.0	Port Jervis.....	T.		Lake Mills.....	T.	
Menominee.....	4		Rochester.....	2	0.0	Madison.....	T.	
Port Huron.....	20	0.0	Rome.....	2		New London.....	T.	
St. Ignace.....	20		Syracuse.....	1		Portage.....	T.	
Sault Ste. Marie.....	8	15.0	Watertown.....	4		Viroqua.....	T.	
Minnesota.			Wedgwood.....	T.				
Baudette.....	1							

* Floating ice. † Shore ice. T. indicates trace.

Detroit, Mich., March 15.—In Lake Superior there are large ice fields off Keweenaw point, while St. Marys River remains unchanged. The ice in Green Bay is softening. In Lake Michigan the fields extend along the east shore from St. Joseph northward to the Straits of Mackinac, where there has been no change. In Lake Huron the fields are confined to the east shore. The ice is breaking up and running out of Lake St. Clair. In Lake Erie there is ice about the islands, along the north shore, and over the eastern portion. In Lake Ontario there are fields over the extreme east portion.

Minneapolis, Minn., March 15.—There are from 2 to 5 inches of snow in the northern woods of Minnesota, and scattered patches remain in the woods of the southern portion.

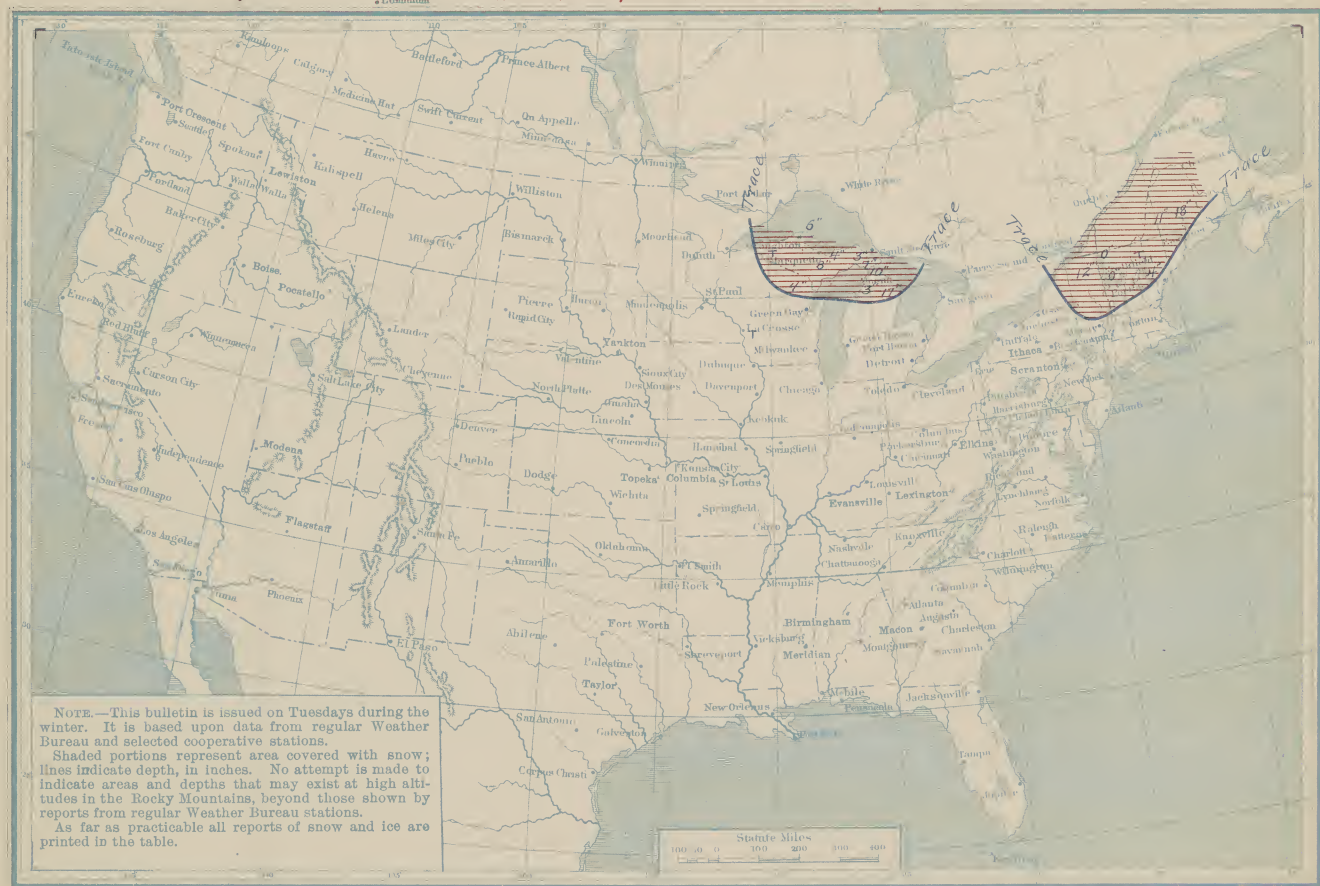
St. Paul, Minn., March 14.—The Mississippi River is clear of ice to Minneapolis. La Crosse, Wis., March 15.—The east channel of the Mississippi River here is clear of ice.

Dubuque, Iowa, March 14.—The Mississippi River here is open below the draw-bridge, but the ice still holds above the bridge.

F. H. BIGELOW, Professor of Meteorology.

SNOW AND ICE BULLETIN.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.



WASHINGTON, D. C., March 22, 1910.
DEPTH OF SNOW.

There was practically no snowfall during the week in any portion of the United States and that which remained on the ground at the end of last week has largely disappeared. At the present time there are but few points east of the Rocky Mountains reporting any appreciable depths of snow still on the ground, except in the higher elevations of the Adirondack Mountains of New York, in the woods of northern Maine, and in the extreme northern portions of Michigan and Wisconsin. Compared with the same date in 1909, there is now much less snow on the ground.

In the mountain districts of the West the snowfall during March, so far, has been much less than usual and no decided change has occurred in the outlook for irrigation water during the coming crop growing season over that indicated in the earlier issues of this bulletin. Later reports from those districts still indicate a good flow of water in most of the streams of Montana, Idaho, and western Wyoming, also in the upper part of the Arkansas and Rio Grande watersheds and generally over Utah and the greater portions of Oregon and Washington.

Over the western slopes of the Cascade Mountains in the last-named States the total fall of snow during February was very heavy, the amounts at points near the summits, especially in Washington, reaching from 10 to 20 feet. Much of this snow melted during the last few days of February under the influence of warm winds and rain, and the heavy character of the snow in the high summits caused many snow slides on the steep slopes.

In California there is generally a marked deficiency in the amount of snow in the high mountains and the prospects are for a much diminished supply of water during the irrigating season. Similar conditions exist in the mountain regions of Arizona and northwestern New Mexico, where the outlook for water is not encouraging.

ICE IN RIVERS AND HARBORS.

Conditions during the week were favorable for a further and generally rapid breaking up of the ice remaining on the streams of the more northerly districts, and, except in northern New England, it has generally moved out of all streams. In northern New England there was a slight increase at some points and but slight decreases at others and the upper portions of the rivers still remain closed.

No ice is reported from the harbors of lakes Erie and Ontario and the ice fields in those lakes are rapidly breaking up and passing out. Some fields are reported from the eastern portions of lakes Huron and Michigan, but the Straits of Mackinac still remain closed as well as the St. Marys River. In Lake Superior the ice fields are breaking up and the ice is moving out of the harbors.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 21, 1910.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Maine.	Inches	Inches	Michigan—Cont'd.	Inches	Inches	New Hampshire.	Inches	Inches
Bangor.....	T.	*	Humboldt.....	T.	T.	Bethlehem.....	T.	T.
Cornish.....	4	...	Ironwood.....	T.	...	Keene.....	T.	...
Eastport.....	...	4.5	Mackinaw City.....	10	...	New York.		
Gardiner.....	T.	*	Mancelona.....	3	...	Albany.....	T.	0.0
Greenville.....	11	30.0	Maple Ridge.....	8	...	Ogdensburg.....	T.	...
Lewiston.....	T.	*	Newberry.....	T.	0.0	Saranac Lake.....	12	...
Millinocket.....	18	...	St. Ignace.....	7	...	Vermont.		
Michigan.			Sault Ste. Marie.....	T.	15.0	Burlington.....	7.5	...
Alpena.....	T.	0.0	Woodlawn.....	17	...	Wisconsin.		
Calumet.....	6	...	Minnesota.			Koepsnick.....	4	...
Chatham.....	4	...	Duluth.....	*	...	Viroqua.....	T.	...
Escanaba.....	T.	19.0						
Houghton.....	T.	4.0						

*Measurement impracticable. T. Indicates trace.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Bangor, Me., March 21.—The ice in the Penobscot River is unsafe.
Gardiner, Me., March 21.—The ice in the Kennebec River is breaking up.
Lewiston, Me., March 21.—The ice in the Androscoggin River here is breaking up.
Albany, N. Y., March 22.—In the Hudson Valley the depth of snow ranges from a trace at Athens to 7 inches at Corinth, N. Y.; in the Mohawk Valley it ranges from a trace at Cohoes to 2 inches at Utica, N. Y. Both the Hudson and Mohawk rivers are open, and navigation has been resumed in the Hudson.

Buffalo, N. Y., March 21.—The ice fields on Lake Erie extend from the outer light-house beyond the field of vision, but they are badly broken up and honeycombed. Large fields are passing down the Niagara River.

Detroit, Mich., March 22.—In Lake Superior some ice fields remain off Keweenaw point, while in Whitefish Bay the ice is breaking up and moving out. The conditions are unchanged in St. Marys River, but in Green Bay the ice is softening. In Lake Michigan there are fields along the east shore from South Haven to Grand Haven and north of the islands. The conditions are unchanged at the Straits of Mackinac. The fields on Lake Huron are confined to the east shore, and the ice is running out of Lake St. Clair. In Lake Erie there are some fields around the islands and over the eastern portion, but they are breaking up. In Lake Ontario the fields are confined to the extreme east portion.

Duluth, Minn., March 21.—The ice is unsafe and going rapidly. There is much open water in the harbor.

Minneapolis, Minn., March 22.—The snow has disappeared from all parts of the State.

F. H. BIGELOW, Professor of Meteorology.

NOTE.—This will be the last bulletin of this series for the season of 1909-10.